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THE IRON AGE

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In the Right Place

THE power of Niagara depends upon the water from above—the water must be in the right place to serve its purpose. So it is with all other things in life — the right person at the right time, the right material on hand when needed.

In fact that is the reason the Ryerson Company has spent a large amount of capital and labor in building up a chain of Steel Service plants throughout the country — store houses of steel where every manufacturer and builder may secure just the steel he needs on a moment's notice.

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RYERSON STEEL-SERVICE

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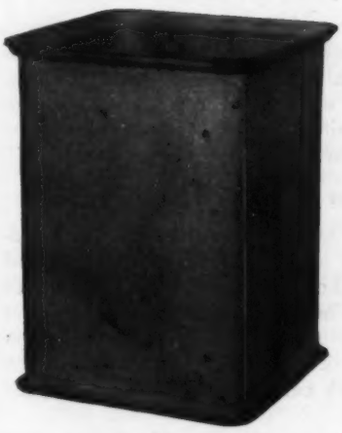

Oven Lining, Chromium Plated, Inside and Out

Plating with Chromium for Wear

Many Uses Outlined in Which Long Life Follows Use—Resistance to Heat-Oxidation Notable

BY C. H. HUMPHRIES*

Chromium-Plated Coin Lock-Box

USES of chromium as a protective coating for various articles fabricated of iron and steel are multiplying daily. Recent application of this metal to commercial practice has effected savings in many industries totaling hundreds of thousands of dollars.

Particularly advantageous has been the chromium coating on rubber-tire molds. At the plant of an eastern tire manufacturer the current practice of tire making demands the cleaning of the tire molds after curing approximately 100 tires. Until recently, soap solution or soapstone was used regularly to prevent the tires from sticking in the molds and to preclude blemishing of the finished tires. The soapstone, sprinkled from a filtering bag, built up deposits on the tire-mold walls. The deposits resulted after a certain time in making less pronounced the definition of the tread characters and the size and name lettering, so that the deposited skin finally had to be removed from the mold.

Another difficulty was the aggregation on the surface of the mold of sulphide of iron, which is produced by the reaction of sulphur from the rubber mix upon the iron of the surface of the mold. Its presence is indicated readily when hydrochloric acid, as a rinse or pickle, comes in contact with the black lining of the molds.

Adoption of chromium plated molds has eliminated the need of soapstone, and has shown that chromium as a surfacing for the inside of automobile tire molds prevents the formation of the troublesome skin previously mentioned, thereby saving tire manufacturers considerable money.

Under the old system tire molds are cleaned by burning away the rubber deposits with an oxy-acetylene flame, and by mechanically removing the residue by means of steel wool or scratch brushes. Steel or cast iron molds cost from $90 to $600, depending on their size and design. On an average, approximately 10 per cent of the molds are idle for the cleaning operation, which is neither short nor easy. It is obvious that a tire plant having 6000 to 8000 tire molds as part of its equipment would have considerable investment idle, with 10 per cent of the molds out of production during the cleaning period.

Only a relatively small outlay is required for equipment sufficient to process with chromium all of the molds in use as well as the new ones. Furthermore, the actual cost of chromium plating is inconsiderable. The maintenance cost for each mold when processed, as compared with the cost of the frequent cleaning otherwise necessary, represents a saving of from $25 to $100, according to the composition of the mixture, the condition of the cure, etc. In this particular field there are many other uses for chromium plating, because tire molds make up but one class of many molds utilized for fabricating rubber articles.

Reflector Linings for Long Life

Another interesting application of deposited chromium coating is as a lining for reflectors. The present method of lining calls for silver plating direct, or silver plating over nickel and then buffing to a high, lustrous finish. Though silver has a high light reflective value, its service is not permanent because of discoloration, chiefly through the formation of black sulphide of silver.

Thin silver mirrors are scratched easily and their reflective value is lessened. Chromium, on the other hand, can be deposited on a highly finished reflector surface in a condition of high luster, which does not require buffing. It neither tarnishes nor discolors, and is so hard when deposited in the right physical condition that it does not scratch when cleaned, even if ashes or soot are on its surface.

A comparison of the silver lined mirrors or reflectors with those which have been chromium coated reveals that the former has a slightly higher initial luminous value, approximately 95 per cent as against 90 per cent for the latter. This is due to selectivity, because of the color of a buffed chromium surface.

*Chemical Engineer, Metals Protection Corporation, Indianapolis.

The Tennessee Products Co., American Trust Building, Nashville, Tenn., has acquired the properties and equipment of Durham Coal & Iron Co., Chattanooga, Tenn., and vicinity. Plans are under advisement for early expansion, including the installation of additional equipment for increased capacity.

Gulf States

BIRMINGHAM, Aug. 23.

THE National Power & Light Co., Birmingham, operating the Birmingham Electric Co., Houston Lighting & Power Co., Houston, Tex., and other light and power utilities, is disposing of a bond issue of $9,500,000, a portion of the proceeds to be used for extensions and improvements in properties. E. W. Hill is vice-president.

The Anderson Brass Works, 700 North Forty-fourth Street, Birmingham, will soon begin work on a one-story addition, 70 x 105 ft., to be equipped as a foundry. Facilities will be provided for an initial output of about 2000 lb. per day.

Charles P. Staley, Fort Myers, Fla., city manager, is asking bids until Sept. 10, for equipment for water supply and sewage system improvements, including ten automatic lift or pumping stations, and other pumping and mechanical equipment. George W. Simons, Jr., 15 Julia Street, Jacksonville, Fla., is consulting engineer.

The Yount-Lee Oil Co., San Jacinto Life Building, Beaumont, Tex., has acquired a tract of about 1300 acres of land on the Neches River, as a site for a proposed storage and distributing plant. The initial installation will consist of about 100 steel tanks, each 55,000 bbl. capacity, pumping machinery and auxiliary equipment.

W. M. Smith & Co., First Avenue, Birmingham, machinery dealers, have inquiries out for a locomotive crane, about 20 tons capacity, also, for an engine-generator set, 150 to 250 kw. capacity, engine of Corliss type, and for a similar unit of about 300 kva. rating.

The United States Engineer, Galveston, Tex., is asking bids until Aug. 30, for 500 condenser tubes, and 1000 condenser tube ferrules, circular 28.

Thurman G. Frazee, First National Bank Building, Houston, Tex., has been appointed Texas representative for the McMyler-Interstate Co., Cleveland, manufacturer of locomotive and crawler cranes, power shovels, clamshell buckets and material handling equipment.

The Leak Proof Roofing Co., Fort Worth, Tex., has been incorporated to manufacture and deal in various types of roofing including composition and metal roofing.

Indiana

INDIANAPOLIS, Aug. 23.

THE Parts Corporation, 733 Virginia Avenue, Indianapolis, manufacturer of automobile parts, has awarded a general contract to the Hall Construction Co., Board of Trade Building, for the proposed one-story additions to its plant, estimated to cost $30,000.

The Hupp Motor Car Corporation, Mount Elliott and Milwaukee Avenues, Detroit, manufacturer of Hupmobile cars, is said to be arranging for the construction of a new branch plant at Evansville, Ind., to be used exclusively for the production of truck bodies. Joseph B. Graham, president of the Hercules Corporation, Evansville, manufacturer of electric refrigerating equipment, is interested in the project.

The Board of Education, La Fayette, Ind., contemplates the installation of manual training equipment in a proposed new addition to the high school, estimated to cost $350,000, for which bids will be asked on general contract in the near future. Walter Scholer, La Fayette, is architect; R. W. Noland, La Fayette, is mechanical engineer.

The Chicago & Eastern Illinois Railway Co., 332 South Michigan Avenue, Chicago, is said to be considering the construction of a one-story forge and blacksmith shop at its repair yards at Evansville, Ind., to cost approximately $70,000 with equipment.

The Weyman Motor Body Corporation, London, England, has negotiations under way for a lease of the former plant of the National Motor Car & Vehicle Corporation, Twenty-second Street and the Monon Railroad, Indianapolis, for the establishment of a branch plant in the United States. F. E. Moskovics, president of the Stutz Motor Car Co., Indianapolis, recently back from a trip abroad, is said to be interested in the proposed Weyman branch plant.

The Board of Education, Gary, Ind., contemplates the installation of manual training equipment in its proposed high school addition, estimated to cost $500,000, for which bids will be asked on general contract in the near future. William B. Ittner, Board of Education Building, St. Louis, is architect.

The Cabinet Burner Co., 435 Massachusetts Avenue, Indianapolis, has been incorporated to manufacture oil burners for domestic use. The company will make all cast iron parts in its own plant and other parts will be bought in the open market.

Pacific Coast

SAN FRANCISCO, Aug. 20.

THE Pioneer Rubber Mills, Pittsburg, Cal., are having plans drawn for a new one-story plant, 110 x 250 ft., to cost close to $100,000, including machinery. Benjamin G. McDougall, 353 Sacramento Street, San Francisco, is architect.

The Santa Barbara School District, Santa Barbara, Cal., has plans under way for manual training shops at the local high school, estimated to cost $130,000, with equipment. W. H. Weeks, Ray Building, Oakland, Cal., is architect.

The Ford Motor Co., Detroit, has engaged Albert Kahn, Marquette Building, architect, to prepare plans for its proposed new plant at Long Beach, Cal., where a tract of land recently was acquired. The works will be devoted to assembling, and will consist of one-story units totaling about 300,000 sq. ft.

J. Edwin Johnson, Vale, Ore., and associates have made application for permission to appropriate waters from the middle fork of the Malheur River, a tributary of the Snake River, in Harney County, for a proposed hydroelectric power project, estimated to cost about $400,000, with transmission system.

The State Highway Commission, Sacramento, Cal., will proceed with the construction of a new repair and maintenance shop, with pumping plant and other service buildings for highway motor trucks and equipment at Bishop, Inyo County.

Fisher Body, Inc., Oakland, Cal., manufacturer of automobile bodies, has awarded a general contract to the Dinwiddie Construction Co., Crocker Building, San Francisco, for a new two-story addition, estimated to cost $40,000, with equipment. T. Ronneberg, Crocker Building, is architect.

The W. H. Worden Co., San Francisco, has been appointed representative for the McMyler-Interstate Co., Cleveland, manufacturer of locomotive and crawling cranes, power shovels, clamshell buckets and special handling equipment, and will handle the company's products in California, Arizona and Nevada. The Hoflus Steel & Equipment Co., Seattle, has been made its distributer in Washington, Oregon and Idaho.

Canada

TORONTO, ONT., Aug. 23.

WHILE demand for machine tools fell off during the first couple of weeks of this month, the market is by no means dull, and sales so far this month exceed those of a year ago. Canadian builders and dealers are preparing exhibits for the Canadian National Exhibition which opens Aug. 28, and it is expected that these showings will give impetus to the demand.

There is considerable building under way in this country with regard to new plants and additions and as many of these are now nearing the stage where equipment will shortly be required, dealers are looking for general improvement in the demand for tools of a diversified nature. Canadian builders of tools and machinery are being asked to bid on equipment required for plants and Government railroads and works in other British Dominions, which will stimulate exports of equipment. The current tool demand is chiefly for single tools on replacement account. Second-hand and rebuilt tools are also moving fairly well and a strong demand is reported for small tools.

The Dominion Alloy Steel Corporation, Sarnia, Ont., is preparing to increase its output and will install considerable new equipment. The company purposes to bring its output of galvanized sheets up to 1000 tons per month, and at the present time is operating two shifts per day of 12-hr. each. W. B. Boyd, president, says it has sufficient orders to enable it to continue capacity operations for three or four months.

The Crown Reserve Mining Co., Larder Lake, Ont., is endeavoring to raise $400,000 for the purpose of carrying out further development and to build a mill there.

The Niagara Wire Weaving Co., Niagara Falls, Ont., will build an addition 110 x 120 ft., which will be equipped to manufacture wire cloth screen 270 in. in width for the paper mills of Canada.

The Johnson Wire Works, Dagenais Street, Montreal, Que., has taken out a permit for a $25,000 addition to its plant.

The Toronto Steam Bath Co., Ltd., Toronto, Ont., has started work on the erection of a plant at Peter and Richmond Streets to cost $30,000.

The Central Spring Co., Oshawa, Ont., has started work on an addition to its plant and will purchase additional machinery.

The Dominion Construction Co., Ltd., 917 Keefer Building, Montreal, Que., has been awarded general contract for the construction of the main dam, tunnel and power house in connection with power development to be carried out by the St. John Power Co., at Grand Falls, N. B., to cost $1,500,000.

Bids are being received by the Noranda Mines & Copper Corporation, Ltd., Keefer Building, Montreal, Que., for the erection of a smelter at Rouyn, Que., to cost $1,000,000.

The Canadian Radiators, Ltd., Hamilton, Ont., have acquired the Monarch tractor building at Brantford, Ont., where it will begin at once to manufacture radiators and parts. Some improvements and additional machinery will be installed in the plant.

The Dominion Truck Equipment Co., South Street, Kitchener, Ont., will build a factory to cost $10,000 and will soon be in the market for equipment.

Western Canada

The Canadian Westinghouse Co., Winnipeg, Man., will build a two-story addition to its plant.

The Western Steel Products Co., Calgary, Alta., has completed an addition to its plant and is installing equipment to double the present capacity of its plant.

The United States Horseshoe Co., Erie, Pa., has purchased the plant of the Canadian Western Steel Corporation at Medicine Hat, Alta., and it is also stated that the company is contemplating buying the Radcliffe Rolling Mills, and will remove the equipment of the latter works to Medicine Hat so as to enlarge the plant there for iron rolling purposes.

The Port Alberni Marine Railway & Machine Co., Nanaimo, B. C., which was destroyed by fire a short time ago, has rebuilt its plant on the old site and has installed new machinery.

Foreign

THE Federal Government of Mexico, Mexico City, has approved plans for harbor improvements at the Port of Mazatlan, west coast of Mexico, estimated to cost close to $3,000,000. The project will include modern wharves and 300-ft. steel and concrete pier, to be provided with hoisting, conveying and other mechanical cargo-handling machinery. The American Consulate, Mazatlan, Sinaloa, J. Winsor Ives, vice-consul, has information regarding the project.

The J. G. White Engineering Corporation, 43 Exchange Place, New York, is establishing an engineering camp on the Rio Manta, near Xicotencatl, State of Tamaulipas, Mexico, to begin work on a large irrigation and power project, for which a contract recently was secured from the Mexican Federal Government. It is purposed to irrigate and reclaim about 25,000 acres of land, with ultimate development of close to four times this area.

The Société des Tramways Smyrne-Gueuestepe, Smyrna, Turkey, is arranging for the immediate erection of a new power plant in the vicinity of Daragatch. The station will be equipped for an initial output of 5000 hp., and ultimate capacity of 30,000 hp. The American Consulate, Smyrna, Samuel W. Honaker, consul, has information regarding the project.

The Michelin Tire Co., Stoke-on-Trent, England, affiliated with the company of the same name with headquarters at Milltown, N. J., has work under way on a new tire and rubber goods manufacturing plant at Stoke-on-Trent, reported to cost in excess of $150,000 with equipment. The city government of Stoke-on-Trent has preliminary plans under way for an extension in the municipal electric power station to develop an increase of about 10,000 kw., using steam-turbo generating unit; a considerable portion of the output will be used for service at the new Michelin mill.

The Sevillana de Electricidad, Sevilla, Spain, has arranged for an increase in capital from about $5,700,000 to $7,100,000 (40,000,000 to 50,000,000 pesetas), and has plans under way for a hydroelectric power development on the Cala River, near Sevilla, to develop an ultimate capacity of 124,000 hp. The American Consulate, Madrid, Spain, Charles H. Cunningham, commercial attaché, has information regarding the project.

Lake Superior Corporation

The Lake Superior Corporation, Sault Ste. Marie, Ont., in the year ended June 30 last showed distinct improvement over the previous fiscal year. Net earnings from operations of subsidiary companies, excluding the Algoma Central and Hudson Bay Railroad companies, totaled $724,248, against $28,685, an increase of $695,562. Interest on bonds of subsidiary companies, on bank and other advances and rentals (less interest earned on bank balances and rentals) amounted to $1,248,959, a reduction of $27,260. The amount for depletion and depreciation of mining properties and quarries was increased by $16,740 to $95,142. The net loss for the year reached $619,853, compared with $1,325,936 in the previous year. The better showing was made possible by general improvement in business and by substantial increase in the tonnage handled, the figures of which compare with those of the previous year as follows:

	1925-26 Tons	1924-25 Tons
Coal imported	462,036	268,790
Ore imported	263,927	216,144
Limestone produced	147,540	107,024
Coke produced	264,500	218,197
Pig iron produced	170,196	155,364
Steel ingots produced	185,149	159,251
Steel products	139,019	123,635

While rail tonnage has been far below normal, the year shows improvement. Due to increased sales of merchant mill products, especially alloy steel, and improved operating practice, the net operating loss of $324 last year was changed to a net operating profit of $393,146. The use of coke for domestic purposes in lieu of anthracite coal has been developed in Canada, and the company's screening and shipping facilities are being extended to take advantage of this market. Total sales of products in 1926 amounted to $8,792,660, compared with $7,468,810 in 1925. The value of orders on hand at June 30 last was $1,628,662, made up of coke, rails, pig iron, and sections for small mills.

Financial Items

Net earnings of the General Fireproofing Co., Youngstown, for the second quarter after depreciation and allowance for preferred dividends, but before Federal taxes, were $295,609, equivalent to $3.62 per share on the 81,740 shares of common stock. The first quarter's earnings were $199,887, or $2.44 per share on common.

The Valley Mould & Iron Corporation, Sharpsville, Pa., has declared a dividend of 5¼ per cent to cover arrearages on its preferred stock, in addition to the regular quarterly dividend of 1¾ per cent.

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NEW TRADE PUBLICATIONS

Automatic Screw-Driving Machine.—Metal Saw & Machine Co., 40 Napier Street, Springfield, Mass. Loose-leaf catalog of 16 pages describing a machine to drive both wood screws and machine screws. It is attached to a drilling machine for this purpose.

Punching and Shearing Machines.—Henry Pels & Co., Inc., 90 West Street, New York. Catalog devoted to hand-operated punching and shearing machines with steel-plate frames. The machines shown include long blade plate shears, combination splitting shears and punching machines, triple-combined punch, shear, bar, angle and tee cutters, and shears with bending attachment for reinforced concrete bars. Many of the models are mounted on trucks for portable use. All units are attractively illustrated, and dimensions are given.

Worm Reduction Gears.—De Laval Steam Turbine Co., Trenton, N. J. Bulletin describing the company's worm reduction gear with pressure oiling system. A sectional view in colors shows the gear type oil pump and other units of the lubrication system.

Automatic Lathes.—Cone Automatic Machine Co., Inc., Windsor, Vt. Booklet of 54 pages, describing the company's automatics, which are available in sizes of ⅞, 1¼, 1½ and 1⅞ in. Illustrations are numerous and includes parts and mechanism detail. A chart of the regular cam layouts and tables of change gears and cutting speeds are included. The catalog is comprehensive in the data presented and is well arranged to facilitate reading and reference.

Fluid Meters.—Cochrane Corporation, Seventeenth Street and Allegheny Avenue, Philadelphia. Monthly issue of the company's Bulletin, devoted to a description of fluid meters, including pipe flow meters for steam, water, air and gases, V-notch meters, weighing meters and volumetric meters. Comprehensive information is furnished including many diagrams, illustrations and tables.

Malleable Iron.—American Malleable Castings Association, Union Trust Building, Cleveland. An attractively prepared booklet of 32 pages giving a comprehensive account of the origin, development, valuable properties, methods of manufacture and uses of certified malleable iron.

Hot Water Storage.—Cochrane Corporation, Seventeenth Street and Allegheny Avenue, Philadelphia. Bulletin devoted to information on the storage of hot water in connection with exhaust steam heaters. Various arrangements of different types of heaters are shown and also hook-ups for installation in paper mills, bleacheries, laundries, tanneries and similar establishments. Another leaflet is devoted to a description of the company's deaerating heater designed to prevent corrosion of boilers in steam plants.

Foundry Specialties.—Chicago Mfg. & Distributing Co., 4010 Wells Street, Chicago. Annual catalog with brief descriptions of bag-holders, foundry floor boards, cores, portable derricks, upset forgings, hammers, wrought iron, sheet metal work skimmers, trucks, woodwork and ratchet wrenches.

Electrical Relays.—Roller-Smith Co., 233 Broadway, New York. Bulletin No. 550, giving description with full technical details of the company's type SR relays, designed to supersede its old Imperial type. The new line includes reverse current, overload, underload and closed circuit relays. Over-voltage, under-voltage and time limit relays are also dealt with.

Loading Machines.—Webster Mfg. Co., 4500-4560 Cortland Street, Chicago. Catalog No. 45, describing the company's Mayne loader for handling broken ore and rock in mine tunnels. Illustrations are given and full specifications of the machine.

Centrifugal Pumps.—De Laval Steam Turbine Co., Trenton, N. J. Illustrated pamphlet describing the company's turbine driven centrifugal pumps in use at the Fairmount Pumping Station of Cleveland. Diagrams and tables of specifications furnish wide information about the units which are equipped to deliver from 20,000,000 to 75,000,000 gal. per day against heads varying from 86 to 400 ft.

Spiral Riveted Pipe.—American Spiral Pipe Works, Chicago. Illustrated folder, announcing with descriptive particulars that the company's spiral riveted pipe is now made with copper bearing steel.

The Bacharach Industrial Instrument Co., 7000 Bennett Street, Pittsburgh, has begun the publication of a monthly bulletin dealing with industrial instruments and the history of their development.

THE LAST WORD

(Contributed by the Reader Service Department of the Iron Age Publishing Co.)

When a man is past the half-century mark, that climb up to the seventh tee is a little hard on the wind. So the question F. Wellington Jenkins, the well-known manufacturer of motors, put to John G. Alexander, who makes stoves, came in staccato:

"For a long time I've wanted to ask you about your labor turn-over. How do you keep it so low?"

John G.'s eyes began to glisten with the light that appears in the optics of a new father when you inquire after the health of his first-born. Away went his cigar; he laid down his mid-mashie, and motioned F. Wellington to sit down on the bench. Then he began.

"I can tell you in exactly seven words. *We have a well-conducted employees' magazine.* Of course, we pay good wages, but no more than anyone else in our line. And we try to make the plant a pleasant place to work in; but the outstanding factor has been the magazine.

"It's my baby, nine years old now. The whole thing doesn't cost us more than two thousand dollars a year, but it has proved so valuable to us that we wouldn't stop it if it cost ten times that.

"However, I don't want you to get the impression that I believe anybody can cut his labor turn-over simply by starting up a plant paper. Some that I've seen don't do a bit of good, and I know of more than one case where they have actually done harm. The thing has to be done right, and if you are interested I'll tell you in two minutes what our experience has been in getting out a paper that helps make a man stick to us when he knows he might make a little more somewhere else."

Without waiting for a reply he continued:

"Make it a genuine plant newspaper. Fill it full of personal items. Nothing is so interesting to anyone as seeing his own name in print. Johnny Brown won't miss a word of the item about Bill Jones' buying a new flivver, while your column and a half on the glorious future of your company will go by the board unread. Cut the sermons down to the minimum.

"And by all means exercise a rigid censorship over the news, especially the personals, for some people have an indelicate sense of humor. In our organization we require the editor to submit the personal items to the foremen of the various departments before printing. In that way we steer clear of anything that might engender bad feeling.

"In a nutshell, the secret of a successful employees' magazine lies in making it interesting to the man in the shop, for whom it is issued, rather than loading it with material aimed to please the boys in the front office, for whom it is not issued."

So saying, John G. swung his trusty iron, and away sailed the ball, slicing toward the rough, as usual.

"What is a 'kerf' anyway?" I wondered, when the first copy of *The Saw Kerf*, E. C. Atkins & Co.'s new magazine, arrived. Webster explains that it is the channel cut by a saw. Probably derived from the same root as "carve." The little publication is distinctive and invites reading. Though the editor's name is omitted, I suspect it is Tom Carroll, Atkins's likable advertising manager. A. H. D.

THE IRON AGE

New York, September 2, 1926

ESTABLISHED 1855

VOL. 118, No. 10

Oven Lining, Chromium Plated, Inside and Out

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BY C. H. HUMPHRIES*

Chromium-Plated Coin Lock-Box

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Particularly advantageous has been the chromium coating on rubber-tire molds. At the plant of an eastern tire manufacturer the current practice of tire making demands the cleaning of the tire molds after curing approximately 100 tires. Until recently, soap solution or soapstone was used regularly to prevent the tires from sticking in the molds and to preclude blemishing of the finished tires. The soapstone, sprinkled from a filtering bag, built up deposits on the tire-mold walls. The deposits resulted after a certain time in making less pronounced the definition of the tread characters and the size and name lettering, so that the deposited skin finally had to be removed from the mold.

Another difficulty was the aggregation on the surface of the mold of sulphide of iron, which is produced by the reaction of sulphur from the rubber mix upon the iron of the surface of the mold. Its presence is indicated readily when hydrochloric acid, as a rinse or pickle, comes in contact with the black lining of the molds.

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Another interesting application of deposited chromium coating is as a lining for reflectors. The present method of lining calls for silver plating direct, or silver plating over nickel and then buffing to a high, lustrous finish. Though silver has a high light reflective value, its service is not permanent because of discoloration, chiefly through the formation of black sulphide of silver.

Thin silver mirrors are scratched easily and their reflective value is lessened. Chromium, on the other hand, can be deposited on a highly finished reflector surface in a condition of high luster, which does not require buffing. It neither tarnishes nor discolors, and is so hard when deposited in the right physical condition that it does not scratch when cleaned, even if ashes or soot are on its surface.

A comparison of the silver lined mirrors or reflectors with those which have been chromium coated reveals that the former has a slightly higher initial luminous value, approximately 95 per cent as against 90 per cent for the latter. This is due to selectivity, because of the color of a buffed chromium surface.

*Chemical Engineer, Metals Protection Corporation, Indianapolis.

After a few weeks of exposure, however, the ratio of reflective value is changed, with chromium standing at 75 per cent and silver at 40 to 60 per cent.

The average locomotive reflector has over 1 oz. and sometimes up to 3 oz. of silver deposited as a mirror, which must be replaced almost yearly. Therefore, substitution of a permanent reflective surface, such as chromium, is desirable from the standpoint both of cost and of efficiency. The average time for depositing a chromium mirror is less than that for depositing a silver mirror.

Plumbing Fixtures for Hard Wear

Application of chromium coverings to plumbing fixtures has proved practical. The shoddy appearance of bathroom fixtures from which the nickel coating has worn is offensive to the eye. It is caused by abrasion on the used parts, such, for example, as on the handles of the faucets. When chromium is substituted for nickel the color resembles platinum, because of its bluish tint. Because of the difference in hardness, the chromium treated surface will outlast the nickel appreciably. Standard nickel plating can be cut through with little effort during the buffing operation, but thinner coats of chromium withstand efforts to cut through them even with sharper buffing compositions and bigger and faster buffing wheels.

Nickel plating is only fairly continuous, in that it has a number of capillaries per unit of surface. At the bottom of the capillaries moisture, carbon dioxide and ammonia cause local action which produces verdigris or a disagreeable green film on the surface of the fixtures, which in time causes the nickel to lift off. Chromium, on the other hand, has few pores and is unique in preventing the formation of this troublesome growth. Therefore, the use of chromium in the plumbing field has effected material savings and has enhanced the beauty of fixtures. A practical example is the employment of chromium as a coating for automatic coin boxes in wash rooms and toilets.

Among other products using chromium as a protective cover are automobile lamp bodies, automobile bumpers, hardware, surgical instruments, door kick plates, serving trays, office and stair railings, chandelier and wall fixtures, precision tools, and various kinds of novelties. The list includes articles for which the top coat is considered not only a finish, but also a protection against corroding media. It can be augmented greatly when cases of protection against specially destructive evils are included.

Heat-Oxidation Well Resisted

Resistance to oxidation from heat is a valuable property of chromium. As a protector for oven linings it is effective to a marked degree. There is no raising or checking of the coat and no discoloration or tinting below 350 deg. C. (660 deg. Fahr.). Even for protection against scaling at higher temperatures it is satisfactory, as it does not oxidize readily under 1100 deg. C. (2000 deg. Fahr.). Valve stems of internal combustion engines and steel pyrometer tubes covered with chromium can be heated and cooled repeatedly without scaling, and under extreme conditions stand up well.

Processing with chromium the individual exhaust ports of airplanes affords a real test. Without a protective coating they show red rust and, although they operate at a red heat, when covered with chromium the only effect is a brown or blue tinting, with no chipping or scaling.

Common electric irons or sad irons remain smooth after a coating of chromium. In fact, there is less tendency for the starch to stick. Even special articles, such as the heating units used for the permanent waving of women's hair, have been protected against oxidation by heat by means of chromium plating.

Hardness to Resist Wear

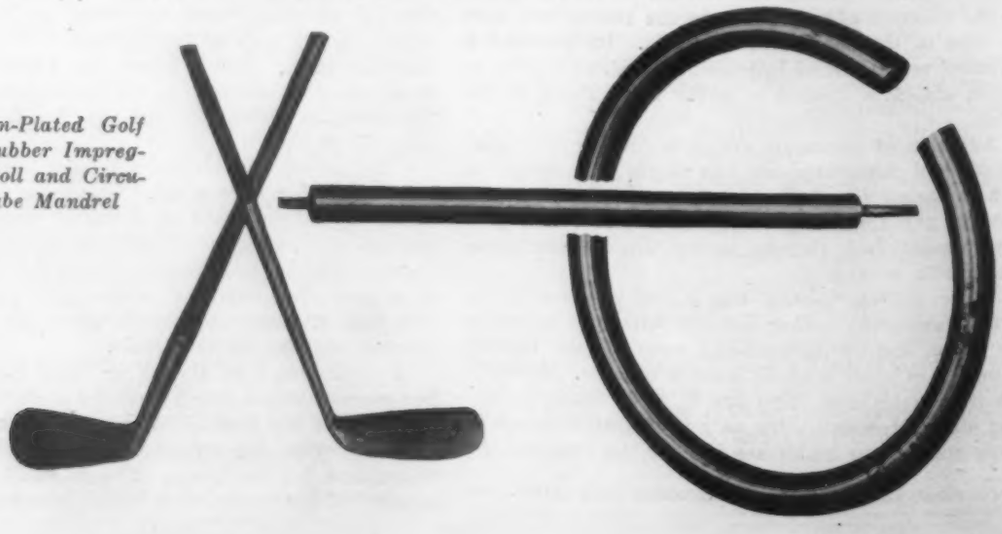
Chromium deposits are extremely hard. The hardness can be controlled and varied between 60 and 85 on the scleroscope. The hardness of the coats gives protection to surfaces in which resistance to abrasion or wear is an important factor. A film of chromium less than 0.0003 in. thick increases about six times the number of prints which can be taken from a copper electrotype.

This resistance to wear makes possible the elimination of some hardening operations on steel wearing parts. On crankshafts and cams in internal combustion engines the chromium coat gives sufficiently long life to make it unnecessary to harden to the glass hard and consequently to the embrittling point.

Early in 1923 the writer chromium-processed some golf clubs which were distributed for test purposes by a well-known sporting goods manufacturer. They have been used under severe conditions, but the scratches from sand traps and gravel are slight. They have not rusted and have not lost their original luster.

Obviously it is impossible to relate all of the applications of chromium. Its resistance to fruit juices and all common acids, except hydrochloric and sulphuric, has made its use on fruit juice concentrators, tomato kettles and concentration coils almost imperative. Acetic and citric acids, found in so many food products, show no action on chromium-treated linings.

Alloys of chromium with cobalt are still more resistant, and parallel the properties of the alloy Stellite. Work with this alloy dates back seven years and the promises of its performance in certain fields exceed those of pure chromium.



Chromium-Plated Golf Clubs, Rubber Impregnating Roll and Circular Tube Mandrel

Both Sides Lose in Coal Strike

American Engineer Finds British Situation Full of Menace to European Industry—Overproduction Has Brought Problems That Are Far From Solution

BY JOHN CALDER

IT is interesting twelve years after the outbreak of the Great War and nearly eight years after its conclusion for an American on the spot, who has observed Great Britain for half a century, to compare the former and present status of its mining industry and its miners. Coal, not debts, is the great European issue of the moment, and an analysis of Britain's conditions and their origin illustrates the general economic question.

Coal mining in England is a basic industry which, much more than with us, exerts an influence with the people at large out of all proportion to its actual dimensions and the number and deserts of the people engaged in it. As with us, also, it exacts from all other industries a toll out of keeping with its contribution. As mining is alleged to be in England the best illustration of "what the worker wants," it is well to analyze his claim and to set forth the facts as well as the fancies; for they greatly concern Americans when we too are invited to substitute "wishful thinking" for rigid analysis of actual situations.

Here it is, then, in brief as abstracted from documents certified by the British Government and not disputed by official labor in that land.

High Percentage to Wages

Before the war an analysis of British coal mining showed that 75 per cent of the product went in wages, 3 per cent in salaries and 22 per cent in profit, interest, rents, royalties and advertising. The figures for all other industries are 58 per cent in wages, 10 per cent in salaries and 32 per cent in profit, interest, rents, royalties and advertising. The outstanding feature of an exhaustive examination of all aspects of British mining today and many years ago is the enormous progress in every respect *except the return to capital.*

In spite of the deeper and more fiery character of the British mines as a whole, compared with ours, there is extraordinarily good inspection, working safety, discipline and accident record. In every other respect there has been marked progress and, however poorly it may contrast with American wage ideals and actualities, the bulk of English labor in coal mining today is better paid than in most of her other great industries. The economic crisis in Britain's coal export trade is a sad fact, but it is not a sin, and it is not helped in the least by the passionate conviction of bad thinking about it which is encountered on both sides of the Atlantic.

"Cost of Living" the Arbiter

In brief, the British miner, of whom there are too many today, wants to eat his cake and also to have it, and his argument is constantly "cost of living." Well, is "cost of living" a satisfactory method of regulating wages? After 44 years in industry, 17 in Great Britain and 27 managing important American plants, my answer is unhesitatingly, "It is not"; and for these reasons:

1. The worker seeks an ever-improving standard of living.

2. To fix a normal "cost of living" which is fair to all wage earners is practically impossible. It is invariably done only for small privileged minorities; whereas *the actual standard of living* varies greatly both with the size of the family and the character of its members.

3. The method of "fixing" wages must always be relative to the amount of available wealth, else it is only a subject of "wishful thinking." The "available wealth" is itself a variable quantity. It was heavily reduced in Great Britain by the war and in 1926 it is not sufficient to maintain the general standard of living as in 1913. This is a regrettable fact—not a burning outrage against labor or an insult to heroes.

MR. CALDER has spent the past summer visiting the leading countries of Europe and has had many contacts with manufacturers, workmen and men in public life, in his study of industrial conditions. The present article is the first of six specially written for the readers of THE IRON AGE, *all giving well authenticated facts in a situation that is of the highest concern to the United States, seeing that the war debt settlement has swallowed up every other international question.*

A later article will discuss the general industrial situation in Great Britain; another will deal with the British iron and steel trade and with shipbuilding; a fourth will be devoted to Germany, a fifth to France and Italy, and a sixth to "The League of Nations and Its International Labor Office."

Mr. Calder's British tour is in part the revisiting of his training ground in industry, as he had his start in a steel works in Scotland and was an honor graduate of the Royal Technical College. For 20 years he managed well-known American plants, including those of the Remington Typewriter Co. and the Cadillac Motor Car Co. He acquired a national reputation in labor management and was called to be the first manager of industrial relations of Swift & Co. with over 100 plants. There, during several years, he developed policies and made a marked success of employee representation, of the organization and education of foremen and executives, and of personnel services. He is now in practice as a consultant. His book "Capital's Duty to the Wage Earner" has attracted wide attention in the past two years.

4. Higher wages tend to higher prices if efficiency is not improved, not to speak of the *reduction* of effort which has actually obtained in British mines.

Traveling the Vicious Circle

In view of these considerations, "Where do we go from here?" Plainly, to those who have eyes to see, the vicious circle of reduced output, higher wages, higher costs, higher prices, inflated employment lists has affected all British industries since the war, but in coal mining particularly it must lead to bankruptcy and unemployment if persisted in, even though the export trade in coal were in a healthier condition. I saw coal from Silesia—or rather coal dust—that cost $10 a ton and was almost worthless, in use in a steel plant where only a few weeks ago the best of British coal at $5 a ton was obtainable; and the Manchester ship canal was lined with ships of all nations bringing in similar high-priced rubbish at ransom prices.

Taxing the whole nation will not save a situation which has no economic warrant. "Living wage" and "cost of living" have done duty long enough as political war-cries (on both sides of the Atlantic). That is all they have done except to furnish much misunderstanding and ill will.

To raise the standard of living in Great Britain, *the amount of wealth produced must be raised as a whole* by an increased output of marketable goods and services.

What Wage Can the Industry Stand?

Ability of the industry to pay—not the cost of living—must govern, and *the willingness to pay all that the industry can afford*, which characterizes so many American employers, must obtain with the mine operators of Great Britain if the necessary production is to be forthcoming.

In the face of this what are the tactics of the contending parties in the coal dispute? Let us look at them in retrospect. In 1920, nearly two years after the Armistice, we find Frank Hodges, secretary of the Miners' Federation, saying, "We are going to create a first-class economic crisis which will reduce the British nation to chaos." He did his best, but the British public absolutely refused to be stampeded into chaos. So did the American public ten months ago prove to shocked mining operators and workers alike that a six months' anthracite coal strike had no terrors for them. When the British coal strike of 1920 was all over and the heavy damage duly assessed, Mr. Hodges announced, "The Miners' Federation is saved but the loss to our people is beyond recovery"; and the president of the federation, Herbert Smith, said, "The price paid has been the poverty and starvation of our members and the misery of millions of their fellow-countrymen."

The Government's Secretary of Mines testified on Dec. 12, 1922, in the House of Commons, that $200,000,000 had been spent by the taxpayers to keep the mining industry on its feet and that the 13 weeks mining strike of 1921 had cost the mines alone $50,000,000.

Since the national settlement of July 1, 1921, the British miners' wages are regulated, not as before, in accordance with the selling price of coal, but in proportion to the difference between the selling price and the cost of production. The relative shares are now fixed at 85 per cent to labor and 15 per cent to capital. That is, out of every 24 cents left after all expenses except wages have been met, the British miner gets 20 cents and is also guaranteed a minimum wage at the expense of the mine owner. Latterly, by reason of the losses of the operators in a period of severe restriction of export demand for coal, Parliament has thrown this load on the taxpayers—*chiefly all other workers*—who furnished nearly $100,000,000 for this purpose between Nov. 1, 1925, and May 1, 1926, and who have called a halt in what is an absurd economic situation.

Nothing Settled, Bitterness Widespread

The miners, out of loyalty to an eloquent, unselfish but unreliable leader, have been headed into a lane that has no turning. They have gradually perceived this and their more conservative and more experienced leaders have looked on in consternation while the federation's funds have been disappearing to no purpose. The native stubbornness of the miners has weakened seriously. A national settlement is no longer possible, for local arrangements for returning to work are a daily occurrence. The general mining strike is over. The reign of a slogan is past. But nothing has been settled and bitterness is widespread. The miners are largely accepting terms less favorable than obtainable 110 days ago when they closed the mines.

The psychology of the ruling mine employers is equally menacing. They have steadily resisted all of the main recommendations of the Royal Commission, which were: (1) Abolition of private ownership of the mineral, (2) Amalgamation of existing mining and distributive agencies, (3) Shutting down of non-economic units, (4) Combination of mines and related fuel industries, (5) Effective research in new ways of winning and utilizing coal.

The Conservative administration, seeing that the miners' leaders were headed steadily for destruction, declined all appeals to put legal pressure on the employers, and the danger is that the latter, whose chief errors have been economic blindness, intense self-assurance, and the enjoyment of a complete and ostentatious independence—not found in the rest of Europe—may act so as to raise a new animus among their men.

Both Sides Have Lost

The fact is that *both sides have lost.* The miners alone in four and a half years of strikes have forfeited enough wages to purchase every mine in Great Britain, and lack of confidence in each other has inflicted irreparable injury upon industries in Britain depending upon fuel. Before the strike ended by attrition foreign coal suppliers were hedging their greatly reduced stocks and demanding long-term British contracts as the price for further supplies. In some cases they got them and in others various coal substitutes of external origin were permanently adopted.

The failure of the British strike, however, has not done anything to solve the coal problem. No one who travels Belgium, Germany and other Continental fuel-producing lands today can be deceived about that. Even were there perfect peace and maximum coal production in all the countries concerned, the coal problem, which is essentially one of reckless overproduction, would only be intensified.

Coal Problem Involves All Producing Nations

The problem is international. All nations with such mineral resources developed have been steadily overproducing coal, coke and lignite for years, and they had built up a surplus by June, 1925, of nearly 70,000,000 tons. To this Russia alone, to the astonishment of the industry, added another 2,000,000 tons by February, 1926. It had been anticipated that the total world demand for coal would reach 1,500,000,000 tons by 1924, but the actual demand was met with less than four-fifths of the existing equipment and that by no means efficiently operated in many cases. Lignite, hydroelectric, gasoline and oil powers are steadily encroaching on the prospects of coal winners and coal exporters, and some international understanding about the regulation of coal production is the only remedy.

No country has greater unstabilizing potentiality

than the United States. In 1920 our country exported 48,500,000 tons of coal; in 1925 only 15,000,000. But if it worked its present capacity steadily for twelve months each year, it would have an *annual* surplus of 200,000,000 tons. An increase in American coal exports is therefore a foregone conclusion, and yet even a 5 per cent increase in such exports upsets European markets.

"Coal War" a Grave Menace

Concluding, let us note that the grave national political and financial crises today in the five great coal-trading European states which I have just visited have provoked a "coal war" as real and as merciless as physical conflict and as international in its repercussions. To this war five countries of great potentiality in coal resources are just beginning to add their strength, viz., Canada, Japan, India, South Africa and Russia. And still other lands with large coal resources have hardly entered the exporting field. When they do they will only add to the present troubles. Until the nations concerned apply themselves to cooperative regulation of coal production no agreement between operators and miners in any one country will guarantee continued satisfaction and stability in their industry. Sir Richard Redmayne—once a miner himself and the Nestor of British mining experts—expresses a truth increasingly apparent to close students of the problem, English and foreign, when he says:

"All coal is too dear. The cheaper a commodity is, the more of it is used."

Nevertheless, there seems to me to be a definite limit to the world's coal demand beyond which low prices cannot stimulate consumption, and in this situation intensification of production and speeding up of the national machinery to outstrip foreign rivals in the world's markets only produces an equal and opposite reaction among opponents and in due time the appropriate harvest, viz., a general coal crisis.

British Mine Owners Do Not Think Internationally on Coal

Few individuals and organizations seem alive to the ominous trend of events in the coal world and the urgent necessity for a study of international solutions —not local poultices—for coal problems.

In this matter the British mine owner and coal trader still thinks he can bludgeon his way through, though the miner dimly perceives that his employer is really at sea on the subject. On the other hand, I have noted this summer in Belgium, and especially in Germany, mining associations fully alive to the menace of indiscriminate production and really desirous to come to some international agreement as to export quantities and export prices. This is a state of mind which British mine owners will attain only when they succeed in unifying their own industry. What will happen then to the miner is on the knees of the gods, but the fewer men who would be needed would be relieved from the gambling risks attending coal production today and would have to claim no higher privileges than the rest of labor of equal skill.

What is needed in coal besides mutual confidence between employers and employees resulting in cooperation is an economic Locarno which would secure an international convention making the present reckless competition and over-production impossible.

National Wealth and Income

A report by the Federal Trade Commission entitled "National Wealth and Income" has been published as Senate Document No. 126 in 381 pages and may be obtained at 50c. from the superintendent of documents, Government Printing Office, Washington. In the general survey, which covers 1922, the total wealth of the country is estimated at about 353 billions. The national income for 1922 was given as 62 billions and for 1923 as 70 billions.

Of the total wealth, 230 billions was assigned to real estate and 123 billions to "tangible personalty or movables." Of the real estate 122 billions represents land value and 108 billions improvements.

Manufacturing Values

One of the most interesting sections of the publication is that devoted to the values created by the manufacturing industry. These created values for a number of years, together with the corresponding figures for "iron and steel and their products" are given in the table, in millions of dollars.

Value Created by Manufacturing
(Millions)

Year	Total	Iron and Steel	Per Cent
1918	$19,344	$4,038	20.9
1919	22,097	3,952	17.9
1920	25,486	7,071	24.8
1921	14,168	2,162	15.3
1922	19,167	3,057	16.0
1923	24,172	5,499	22.7

Not only does this table show a drop of more than 50 per cent from 1920 to 1921, but it shows also that the iron and steel industry as a whole was much harder hit by that depression than was the case with industry in general. Thus the drop in that industry was almost 70 per cent, against only 44 per cent for all other industries combined. The iron and steel industry in the largest years has ranked at the head of all major groups tabulated in the book. In the years of depression, however, textiles have stood first, with iron and steel in second position.

To Abandon Cleveland Plate Mill

The Cleveland Steel Co., Cleveland, closed down its plate mill plant last week and operations will not be resumed by the present owners. Negotiations are under way for the sale of the plant, but unless these go through the company will be liquidated. The plant has been in operation since 1853, being one of the first steel plants built in Cleveland. The company, originally the Cleveland Boiler & Plate Iron Works, was succeeded in 1879 by the Britton Iron & Steel Co. In 1893 it was incorporated under its present name. A change in ownership occurred in 1916 and the plant has since been operated under its present organization. Issued capital stock amounts to $337,300.

The plant is equipped with a 72-in. sheared plate mill with roughing and finishing stands. Its product includes sheets in the heavier gages as well as sheared plates. Its output is in 12-gage and heavier material and up to 64 in. wide. The company has always purchased its semi-finished steel in the open market.

Active officers of the company include James C. Jones, president and general manager; A. C. Baker, assistant secretary and assistant treasurer, and A. E. Quere, general sales manager.

A new line of battery charging equipments in uniform frame sizes has been developed by the General Electric Co. These equipments consist of motor-generators and unit control sections, and are applicable to the multiple charging of batteries used in electric industrial trucks, electric road trucks and storage battery locomotives.

A final decree for an injunction has been issued by the United States District Court for the western district of Missouri against the Liquid Steel Welding Corporation, Anton Lucas and others of Kansas City, Mo., in a suit for infringement of patents brought by the Goldschmidt Thermit Co., a subsidiary of the Metal & Thermit Corporation, New York.

Machine Molding With Single Flask

Time for Making Ashpit Molds Lowered by Machine Combining Jolt-Ram, Rollover Power Draw and Other Operations

DOING a job in one-sixth the time originally required is the record of the Boynton Furnace Co., Jersey City, N. J., in the production of green sand molds for tank heater ashpit castings. When floor molded, the time per mold was 30 to 35 min.; but with power-operated molding equipment of recent design the production is at the rate of 5 min. per mold complete.

The tank heaters are used in connection with hot water supply systems and are made in five sizes, designated as Nos. 9, 11, 13, 15 and 18, respectively. At present, only molds for the ashpits of the two smallest sizes are being machine molded, but it is planned later to make molds for the larger ashpits by the same methods, described below. The ashpit of the No. 9 heater is 16 in. in diameter, 10 in. deep and weighs 30½ lb. The No. 11 ashpit is 18 in. in diameter, 10½ in. in depth and weighs 35 lb. The thickness of metal in both cases is 3/16 in.

One Flask Used in Molding Operation

The "Wood process" molding machine, employed in making these ashpit molds, is shown in Figs. 1 and 2. This equipment, made up of three units, *A*, *B* and *C*, Fig. 1, combines jolt-ram, power draw, rollover, mold assembly and strip flask operations, in one machine. A unique feature of the process is that the flask is attached permanently to the right-hand or cope unit *B* of the machine, and is the only flask used in the molding operation. This flask, it should be mentioned, is used chiefly to dimension the sand mold, the exterior of which is required to fit exactly the interior of the pouring jackets described below. This elimination of all except one flask is an outstanding saving claimed for the Wood process.

Another feature of the process is the use of the matched aluminum pattern parts consisting of a cope pattern and follow board and a drag pattern and follow board. The matched parts on follow boards are shown in Fig. 3 and the aluminum follow boards, matched parts and aluminum flask assembled, are shown in Fig. 4. These matched pattern parts are made from one mold, which is stressed as assuring accuracy. Because of the proper gating and the precision with which these matched parts are made, breakage of molds is said to be practically eliminated.

The use of pouring jackets is still another feature of the process. When a group of molds is ready for pouring, these jackets, shown in the foreground of Fig. 1, are slipped over the molds to support and confine the sand. When placed in position the jackets, which are machined to fit exactly over the mold, are secured to the bottom board by hinged clamps. These clamps by means of simple lever action hold the mold rigidly to the bottom board. It is only necessary to carry a sufficient number of the pouring jackets for one "round" of metal, as after pouring they may be moved in rotation to the next group of molds, the transfer being quickly made. These jackets eliminate the use of separate weights, clamps, and wedges, and, being of grill construction, they permit the ready escape of gas on the sides and ends as well as the top of the mold. The continuous band around the jacket, about half way up its height and at the point of junction of the cope and the drag, is intended to prevent possibility of a run-out at that point.

Of the three units making up the machine, the left-hand unit *A*, Fig. 1, is used to make the drag part of the mold, the right-hand unit *B*, to make the cope and

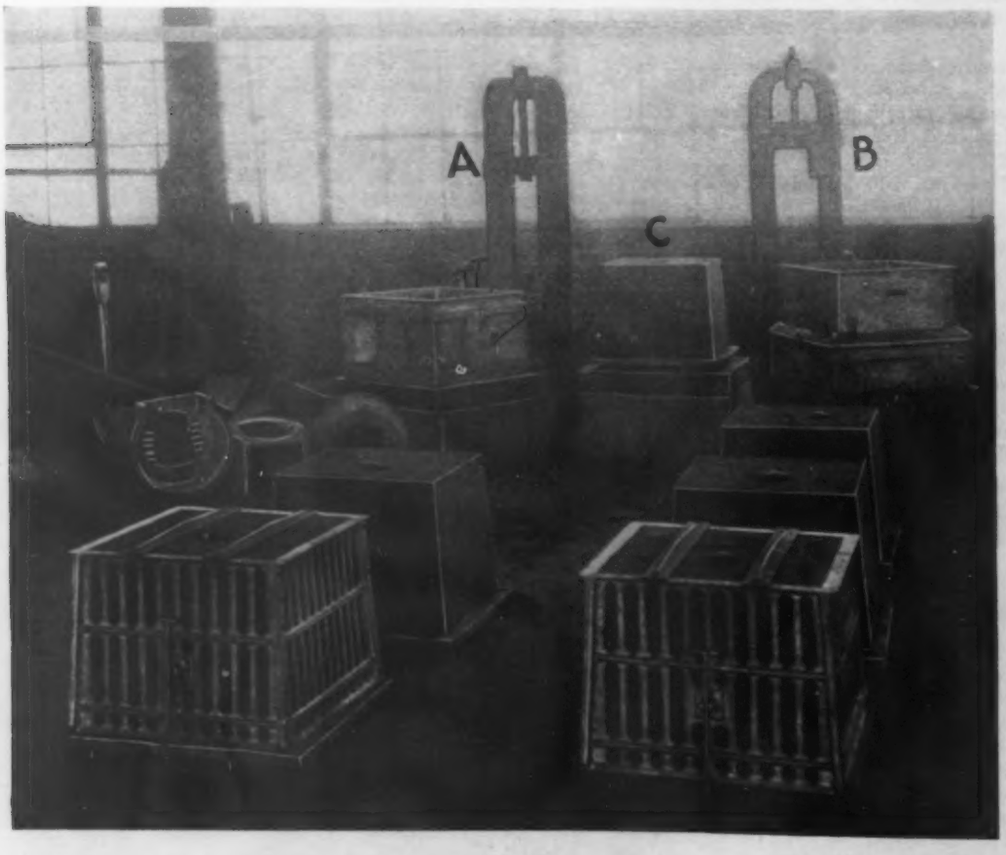


Fig. 1—"Wood Process" Molding Machine Employed in Making Ashpit Molds. Production is at the rate of 5 min. each, complete. A feature is the use of matched aluminum pattern parts and the pouring jackets shown in the foreground. The one flask used is attached permanently to unit B

Fig. 2 — Assembling of the Drag and Cope. Air is turned into the cylinder of the assembling table, causing this table, with the rammed drag, to rise to the cope within flask d'. Sand returning slides are released and the completed mold is withdrawn from the flask

draw the cope pattern and the center unit *C* to assemble the mold.

The arrangement of the drag and cope units *A* and *B*, which are of the same construction may be noted from Fig. 2. Each unit is made up of a jolt ramming machine mounted in a pit, the table of which, *a*, is elevated by compressed air admitted to the jolt cylinder in the usual way. Slidably mounted in the standard *b* there is an arm *c*, to which is secured the follow

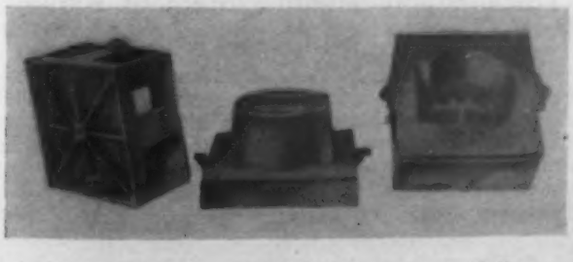


Fig. 3—Aluminum Matched Parts on Follow Boards, Showing Construction

board *d*, for the matched part, and on the cope side the aluminum flask, *d'*. The standard *b* is arranged so that it rotates, permitting the follow board *d* and flask *d'* to be swung over the table of the assembling machine, *C*. The arms *c*, to which the follow board, *d*, and flask *d'*, are attached, are movable up and down the standard *b*, permitting the follow board and flask to be elevated or lowered on the standard *b* by the action of table *a* of the jolting machines. The arm, *c*, is also arranged so that the follow board and flask may be turned or rotated at right angles to the axis of these arms. Thus universal movement is provided for the follow board and flask.

Cope and Drag Parts of Mold Made and Assembled Rapidly

Two men (a molder and a helper) operate the machine. The drag and the cope parts of these ashpit molds are made simultaneously.

In making the drag, the drag pattern is first secured to the arm *c* with the pattern resting on the jolt table. The drag part of the flask is placed on the pattern and a core is set for openings which receive the ends of the grate bars in the finished ashpit. The drag part is then filled with sand. Air is then turned into the jolt cylinder, and after the table has made the required number of strokes, the air is turned off and the jolt valve thrown out of connection.

Surplus sand is removed by means of a strike-off and a bottom board is then clamped in position on the drag. Air is again turned into the cylinder, which causes the jolt-table and drag to rise to a pre-determined height, the drag being locked automatically at this height by means of the clamp hook *e*, Fig. 2. Air in the cylinder is then released, causing the jolt-table to lower to its initial position. The rammed drag with pattern plate and bottom board still in its clamped position on the standard is then turned over on its

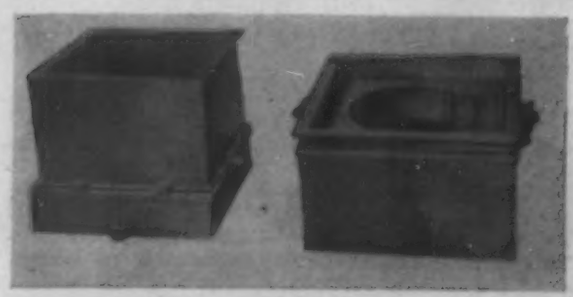


Fig. 4—Aluminum Follow Boards and Match Parts Are Shown at Right. Cope and drag flasks assembled are at the left

axis, a ball lock on the arm *c*, Fig. 2, being first released. The bottom board is thus on the underside of the drag. The standard, *b*, is then turned on its axis until the rammed drag stops directly over the table of the assembling unit *C*.

At this point the assembling table comes into operation. The operator turns the air into the cylinder under the assembling table, causing this table to rise up to

the underside of the bottom board of the rammed drag. The clamps which hold the bottom board to the follow board are then released, permitting the parts to be drawn free from the pattern. The air is allowed to escape from the cylinder of the assembling table, causing this table to lower and the rammed drag on the table to drop free from the pattern, as shown in Fig. 2.

The drag pattern is then swung back over the ramming table, turned over, and air let into the ramming table cylinder, causing the table to rise to the drag part, sufficiently to release the hook *e*. Upon turning off the air from the cylinder, the table with the drag part lowers to its initial level. The jolting mechanism is then thrown into connection and the cycle of operations is repeated.

Meanwhile, the cope has been rammed in the following manner: The cope pattern plate is secured to the jolt table of the cope ramming unit, which is identical with the drag ramming unit except that the flask part, *d'*, is secured to the arm, *c*. The ball lock is not used for rolling over, except in cases requiring blackening of the mold. The ramming is accomplished by jolting as in the drag part of the mold.

After ramming, air is turned into the table cylinder, causing the table and cope part to rise until the hook on the standard locks the arm, *c*, in place. The air in the cylinder is then expelled, the table lowers and pattern attached to it is drawn from the rammed cope, the cope being suspended in mid-air. The standard, *b*, is then rotated until the cope is directly over the rammed drag. Air is turned into the cylinder of the assembling table, causing this table with the rammed drag upon it to rise, effecting assembly of the drag and cope. The mold now being closed and sand retaining slides in the cope released, the mold is withdrawn from the flask *d'* by releasing the air from the assembling table cylinder. The completed mold thus slips free of the flask. The cope part is then returned to its ramming table, closed on its pattern plate, and the cycle of operations is repeated.

The completed mold is then lifted from the assembling table and placed on the floor, after which a pouring jacket is placed around it, as described in the above paragraphs.

Smooth Castings Produced

In addition to the lowering of production time, advantages claimed for the Wood process molding machine include reduction of labor cost, savings in foundry floor space and production of castings that require the minimum of grinding in the subsequent fitting of the ashpit doors. The particular machine used at the Boynton company's plant is designated as the model No. 350, and is designed for firepot, ashpit and other molds up to 12-in. draw.

Wood process molding machines, which are being marketed by the Foundries Service Corporation, 25 Broadway, New York, are built by the Bethlehem Shipbuilding Corporation, Ltd., Elizabeth, N. J. Metal pattern plates, pattern parts, flasks and pouring jackets made by the "Wood process" are also marketed by the Foundries Service company. Hand and power-operated, stationary and portable machines have been designed and capacities range from the small snap class of work up to the limit of economical production with the use of pattern plates and parts.

WHAT RAILROADS DID IN 1925

Rolling Stock Changes—Traffic a Record—Average Freight Rate, 1.097 Cents

Freight cars installed during 1925 by Class I railroads are reported by the Interstate Commerce Commission at 132,543. Those retired numbered 122,352, leaving a net gain of 10,191. The number of freight cars on Dec. 31 was 2,357,226, with an aggregate capacity of 105,569,386 net tons. Steam locomotives at the end of the year numbered 63,612, there having been 1585 installed and 2884 retired, showing a net loss of 1299. These locomotives had a total tractive power of 1,293,411 net tons. There were 363 electric locomotives at the close of the year, of which 11 were installed during the year. None were retired. The total tractive power of these units was 9084 net tons. Mileage operated at the end of the year included 236,846 miles of road and 391,533 miles of all tracks. Of the road, 35,200 miles had at least two tracks.

Movement of Freight Enormous

Carload traffic, originating, aggregated 35,147,837 cars, with a total of 1,206,656,239 net tons, or an average of 34.33 tons per car. In addition, the traffic in less than carloads represented 40,586,944 tons. Total revenue freight carried was 2,306,976,706 net tons and its movement represented 413,823,173,485 ton-miles. This movement is equivalent to carrying an average carload around the earth 482,200 times.

Employees average 1,747,207 during the year, with total compensation of $2,860,607,183, or an average per man of $1,637. Rails laid during the year aggregated 3,484,426 gross tons in replacements and betterments and 425,617 tons in additional tracks, new lines and extensions. Fuel consumed by locomotives amounted to 135,411,161 net tons.

Revenue freight was hauled an average of 179.38 miles. The revenue per ton average $1.97 or 1.097c. per mile. Passengers were carried an average of 40.47 miles, the revenue per passenger being $1.19 on the average, or 2.938c. per mile.

Total investment in road and equipment of the steam railroads of the United States is reported as of Dec. 31 last at $22,709,268,838. Including current assets and some other items the total assets of the Class I roads are listed at $26,017,345,278. Against this property appear capital stock to the extent of $7,682,147,719 and bonds of various descriptions aggregating $10,973,825,497. Thus the capital structure represents only 71.7 per cent of the total assets.

Track Supply Manufacturers to Exhibit Sept. 21-23

The Track Supply Association, an organization of manufacturers of track appliances affiliated with the Roadmasters and Maintenance of Way Association of the United States and Canada, will hold its fifteenth annual exhibition and forty-fourth annual convention in Chicago on Sept. 21, 22 and 23. The following companies will exhibit:

Kentucky Rock Asphalt Co.
J. R. Fleming & Son Co.
American Valve & Meter Co.
Electric Tamper & Equipment Co.
Magor Car Corporation
Mechanical Mfg. Co.
National Lock Washer Co.
Kalamazoo Railway Supply Co.
Duff Mfg. Co.
Verona Tool Works
Lundie Engineering Corporation
Chicago Malleable Castings Co.
Woolery Machine Co.
O. F. Jordan Co.
American Steel & Wire Co.
Union Switch & Signal Co.
Railroad Supply Co.
American Chain Co., Inc.
Mudge & Co.
Positive Rail Anchor Co.
Cleveland Railway Supply Co.
American Fork & Hoe Co.
Thomas A. Edison, Inc.
Fairbanks, Morse & Co.
Crerar-Adams & Co.
Warren Tool & Forge Co.
Northwestern Motor Co.
Q&C Co.
Reliance Mfg. Co.
Hubbard & Co.
American Hoist & Derrick Co.
Templeton, Kenly & Co., Ltd.
Bethlehem Steel Co.
Ingersoll-Rand Co.
Fairmont Railway Motors, Inc.
Ramapo Ajax Corporation.
Rail Joint Co.
Maintenance Equipment Co.
P. & M. Co.
Oxweld Railroad Service Co.
Sellers Mfg. Co.
Buda Co.
Reade Mfg. Co.
Creepcheck Co., Inc.
Skelton Shovel Co., Inc.

The secretary of the Track Supply Association is T. F. Donahoe, 428 Mansion Street, Pittsburgh.

The Wellman-Seaver-Morgan Co., Cleveland, reports the sale of 56 10-ft. and two 8-ft. gas producers in the first eight months of 1926.

Syndication Grows in Germany

Movement Seeks Stabilization of Industry Through Revival of Cartel System—To Centralize Sales, Fix Prices and Regulate Production

BY PAUL M. TYLER

AMONG factors to be reckoned with in foreign trade is the rapid reorganization of German industry. Even in 1925 less steel was made in Europe than in 1913, whereas production in the United States was 50 per cent more than pre-war. This failure, repeated year after year, of the steel industry abroad to come back to normal is not due to inferior mechanical plant, for it is no longer accurate to picture foreign steel works as typically antiquated or particularly inefficient, even when compared with those in the United States. The steel industries of England, France, Belgium and Germany have all been virtually rebuilt.

That relative inefficiency does not explain Europe's lagging behind the United States is further indicated after an even casual inspection of comparative prices, most steel products being substantially cheaper abroad. Widespread poverty or lack of buying power is often put forth as another reason for this state of affairs, but even that does not constitute a complete explanation for a depression so long continued. The trouble lies deeper than any of these surface indications; the tendency is to attribute it now to psychological factors. The conviction grows that one of the causes, if not the leading one, is uncertainty — the prevailing fears that prices will fluctuate, that unforeseen difficulties will halt production programs, and that business generally is in an unsettled state. For correcting this condition the German plan is cooperative control of prices and production in the belief that by creating artificial stability confidence in the return of real stability will follow in due course.

Period of Mergers Follows War

As a result of the world war, the highly organized system of German syndicates or cartels was disrupted, and for several years there were practically no formal associations of manufacturers. Although brought constantly together in conferences over reparations, taxation, transport and other post-war problems of common interest, the various companies competed fairly actively among themselves. This was true even in the steel industry, for the Stahlbund then existent was a purely voluntary affair with no real organization or powers, and its meetings were confined mainly to the exchange of opinions. So long as costs were kept down artificially by the steady decline in the value of the mark in international exchange and the much slower decline in its purchasing power at home, business was easy to get. Since the chief difficulty was to get the requisite raw materials, it was no time for forming price pools.

This period was characterized by the rapid growth of vertical combinations. Industrial groups much more highly integrated than the United States Steel Corporation, the Bethlehem Steel Co., or any other domestic organization, were formed. Steel companies, after consolidating agencies for assuring their supplies of raw material, sought outlets for their products by acquiring machine shops, foundries and electrical factories. At the same time, however, a certain amount of horizontal combination was going on. The death of Stinnes, however, made it plain that these diversified establishments, although easily absorbed, were slow to digest.

German thinking then reverted to the idea of voluntary association. In 1922 the non-ferrous metal cartel had been revived successfully and, early in November, 1924, scarcely one week after the Allies relinquished economic control of the Ruhr, preliminary organization was completed of a new German Steel Association, comprising all the principal companies.[1] Pressure was immediately brought to bear on the Government to restore the tariff on steel to the pre-war scale, and measures were taken to regulate output to conform with demand.

At first the separate sales organizations of the affiliated companies were not taken over, but in April, 1925, when the association was reorganized, a subsidiary syndicate was formed to market all the so-called "A" products, comprising semi-finished steel, structural shapes and railroad material. While the Krupp works elected to retain control of its own sales, it virtually agreed to cooperate with the syndicate, which now includes all but two or three of the important companies in Germany. In the "B" products, or finished steel group, a tube syndicate was formed by the makers of wrought pipe in April, and in quick succession followed syndicates covering axles and tires, heavy plates, and so on, all organized under the Steel Works Syndicate and more or less affiliated with it. At a meeting on July 14, 1925, a month before the new tariff act passed, the pre-war practice of granting bounties was resumed and made retroactive to March. About the same time, agreement was reached with the *Avi* to allow rebates, equal in amount to the bounties, on all steel used in exported machinery and other metal manufactures. The *Avi*, which is an association of various individual syndicates, embraces practically all German metal-working companies important enough to export, including manufacturers of locomotives, hardware, machinery and metal goods generally.

Early Syndicates Were Mainly Price Pools

The German genius for organization has reached its highest development in the almost innumerable syndicates or cartels and similar cooperative schemes. Rail pools existed in 1855, and in 1862 a combination was formed among tin plate makers, but as these early cartels were mainly for price-fixing, the real beginning was in 1878, when a number of coal operators united for the purpose of restricting output. The system spread most rapidly between 1894 and 1897, and soon after it had pervaded every branch of German industry. In 1910 there were 46 distinct syndicates in the coal and iron trades alone. Local syndicates banded together to form national organizations—the old Pig Iron Syndicate, for example, at one time was composed of five local syndicates—and syndicates in one industry entered into contracts with those in other industries, all cooperating for their mutual interest. While most of these syndicates were simple price pools, there were many that developed highly diversified functions, requiring organizations perfected to the most minute detail. The whole system became highly intricate, for it dominated the entire structure of German industry and commerce. Even now, it is confidently stated that more business is done between cartels than between cartels and independent companies. In iron and steel, especially, the amount of material sold in the open market is surprisingly small.

Present Cartels of Two Types

Cartels are of two principal types. The stronger type is a close corporation, shares of which are distributed among the members in proportion to their

[1] The names and production quotas of the affiliated companies were announced in THE IRON AGE of Dec. 25, 1924, page 1671.

respective interests in the enterprise. These shares, being of small nominal value, serve simply to demonstrate the position of each member and cannot be transferred without the consent of other shareholders assembled in a general meeting. The other type, which is not incorporated, is a purely voluntary association, held together by written contracts covering some specified period, usually two or five years, but subject to renewal. The head office of the stock company form of cartel may be called the Gemeinschaftliche Verkaufstelle to distinguish it from the central office, or Geschaftstelle, of the more loosely affiliated type of association. In the latter form of cartel, if a powerful firm dominates the whole syndicate, it frequently assumes the functions of the central office.

Virtually all cartels fix prices, and most of them maintain a central sales organization in addition to carrying on statistical work. A few go so far as to take over all the marketing and administrative responsibilities of an entire industry; the syndicate in that case acts in the capacity of a great holding company, since the member companies, while still retaining their financial independence, then become little else than productive units for supplying products in the quantities and for the prices stipulated by the central office.

Functions of a Highly Developed Cartel

A highly developed cartel may be empowered (1) to fix prices, (2) to fix the total output of the industry, (3) to allot sales territory for each associated unit, (4) to watch the market and make contracts with customers, (5) to distribute orders among the members, (6) to regulate production of each works (obviating the need for any plant to work only part-time when orders could be more economically supplied by other plants), (7) to admit new members, (8) to deal in the total product of the associated plants or, sometimes, to deal in a particular portion or class of the product, (9) to collect the proceeds of all sales and to compensate individual members for any deficit or excess of production, (10) to assign and pay bonuses on exported goods, and (11) to levy fines on members for violations of the agreement.

Raw Steel Syndicate Regulates Production

Before the organization is complete, experts are appointed to visit each plant and to determine its capacity. In the present Raw Steel Syndicate the capacity of each plant was based upon its highest actual output for any three consecutive months within the past three years. But mutually satisfactory results are also obtained by other methods. After once ascertaining the combined capacity of all plants, quotas are assigned to each plant according to its relative capacity, and thenceforth production may be regulated in harmony with expected demand by specifying what percentage of the quotas shall be produced. In this manner steel output has been limited lately to 65 per cent of capacity, each works being required to curtail production by 35 per cent. Another plan for restricting output is to close down small or high-cost plants, indemnifying the owners out of the receipts of the industry as a whole. Although this plan would often prove more economical, it is seldom practiced.

Most syndicates which regulate output have a system of penalties whereby companies producing for two consecutive months any excess over their allowable quotas have to pay a fine upon such excess. These fines (which amount to 20 per cent of the value, 25 marks per ton, or some other specified sum) are turned over by the syndicate to those that did not attain their full quotas. Often, however, a company that for any reason does not receive its full share of orders during one period is allowed a correspondingly increased allotment for the next period, while conversely those that secure more than their fair share in one month or quarter receive a reduced allotment for the succeeding period.

Sales are made sometimes by the central office, sometimes by the respective members, and sometimes by both. Occasionally, as in the Wire Syndicate, bulk lines are sold through the central office while specialties are sold by the manufacturer, under only general supervision by the syndicate.

Payment for Orders Is Made to Central Office of Cartel

When a central selling organization is set up, the method of handling sales is similar to that employed in any large private company whose plants are situated in different localities. All orders are turned over to the central office to be apportioned to the different works. Every member must accept all orders allotted to him, although he is entitled to compensation for any extraordinary changes in equipment that may be required. A little trading is also done among members where one finds that an order placed with another firm would fit into his production schedule better than his own allotment. These exchanges, however, can be made only with the full knowledge and consent of the directors of the syndicate. Usually once a week each member is furnished with a statement of offers and orders received, although frequently no information is given as to prices. Upon executing an order, the invoice is made out at the plant on a form bearing the name of the syndicate and, generally, also the name of the manufacturer; but, before being sent to the customer, the invoice must pass first through the central office for examination and record. Even in syndicates sales of which are executed in the names of individual companies and in cases where certain companies have been permitted to retain old customers (who dealt with them before the syndicate was formed), payment is commonly made by the customer to the central office instead of to the company supplying the goods.

Prices Vary in Different Localities

Prices, since they are adjusted according to competition, are different in different localities. Even in *unbestritten* districts where competition—both foreign and domestic—is negligible, a peculiar process of equalization is often adopted whereby nearer customers pay higher prices than those situated farther away. Since this practice is employed even where there is no expectation of effective competition, the theory back of it apparently is to place all consumers upon a more or less equal footing regardless of what freight they have to pay, the effect being quite the reverse of the former American practice of quoting on the Pittsburgh base plus freight.

In the complicated organization of the old Pig Iron Syndicate, for example, a minimum or basis price was first agreed upon and from this was calculated a "making-up" price, using a freight table showing rates from each works to every station in Germany. The price quoted, however, was ordinarily higher than the base price with freight added. Since the furnace supplying the iron was paid only the minimum price, the margin between the two prices, less the cost of doing business, constituted the profit made by the syndicate. Profits all went into the same pool, and the periodical dividends were distributed among the members according to their respective quotas, regardless of the actual profit made upon their individual shipments. In the interest of general economy efforts were always made to save freight by placing orders with the nearest works or even to favor those in the Southern and Western part of the country by allowing them occasionally to ship into Eastern territory, where fuel and other materials cost more.

Prices Not the Same to All Classes of Buyers

Prices are not the same to all classes of buyers. The present Tube Syndicate provides for making sales to two groups, namely, Group W, composed of individual sales organizations of its own member factories, and Group A, composed of jobbers who during 1924 (the year prior to the formation of the syndicate) had a turnover of 2000 tons or more. A third class, Group B, is made up of companies with a minimum turnover of 1500 tons, although such companies, in common with all other purchasers, can buy only from members of one of the other groups. Purchasers in Group W are allowed a discount of 4 per cent and those in Group A are allowed 3½ per cent, whereas Group B companies pay an advance of 2½ per cent above the nominal quo-

tation, which itself varies according to the size of the order.

The system of export bounties, while it has aroused a good deal of attention from time to time and although it was introduced back in 1897, has not been always clearly understood. The bounties are not paid as a bonus to members who export. Receipts from exported goods are ordinarily treated in exactly the same way as receipts from domestic sales, the shipping company being paid only the regular base price and the surplus or deficit being charged into the general fund of the syndicate. In the steel industry, for example, the bonus is a rebate extended to German consumers that export machinery or other products made from material bought from the Raw Steel Syndicate. Recently this bonus has been the exact difference between the home price and the export price, the former being higher because of the tariff. In effect it corresponds to the drawback privilege extended in the United States and elsewhere for the remission of the whole or part of customs duties paid upon material used in export goods. Since bounties are purely voluntary, however, they may be discontinued, restored or variously modified from time to time in response to the Syndicate's ideas as to market conditions at home and abroad and, to an increasing extent, in response to the pressure brought to bear by consuming interests, which are likewise banded together.

Restrictions on Export Bounties to Machinery Builders

It often happens that a syndicate will refuse to pay bounty upon more than a portion of the material bought by a consumer. Not long ago, certain companies complained that the bonus allowed by the Steel Syndicate was merely a credit toward the purchase of ten times the tonnage for which bounty was claimed. For example, after proving the export of a certain amount of machinery and after proving that 10 tons of steel was purchased from the syndicate and used for making this particular machinery, these companies then had to buy 100 tons more steel at the home market price to get the bounty. This limit of 10 per cent, however, is uncommonly low, the usual allowance being at least one-third and often one-half of the total.

Bonuses are almost never paid to members of the syndicate itself, even when a steel maker, for example, buys blooms or billets from another member of the syndicate and later exports steel bars made from them. The Steel Syndicate, however, made a contract recently with the Hagen Association of Cold-Rolling Mills extending the bonus to exports of cold-rolled strip made from hot-rolled material which it supplied.

It is customary for the different syndicates to cooperate with one another on these bonuses. An early arrangement of this sort was the 15-mark bonus on wire rods, which was allowed on all wire or wire products exported and which was shared equally by the three syndicates furnishing coke, pig iron and billets, respectively. To facilitate adjustments of such joint contributions, the "clearing house for export," originally set up in 1902, has been lately reconstituted.

Cooperation among the different syndicates is not limited to the granting of export bounties, but extends to other matters. Boycotting has been freely used both to force buyers to deal exclusively with the recognized syndicate and to maintain prices of finished goods made from material supplied by the syndicate.

New Raw Steel Syndicate Stronger Than the Old

In the iron and steel industry the Steel Works Syndicate is the dominant factor, as it forms the framework for all the various other syndicates and price pools dealing with individual products; it even houses most of them in its big office building (*Stahlhof*) in Düsseldorf. While the former Steel Syndicate showed signs of weakening before the war because it governed only semi-finished steel (A products), the new organization already has gained a better control over finished material (B products). It has done this partly through the system of steel allotments. But the main reason for its greater strength is that the many vertical and horizontal combinations that have taken place since 1914 have made its members individually more powerful. Since they now control so large a part of the finishing and manufacturing industries, it is reasonable to suppose that, having once agreed upon a course of action by the Steel Works Syndicate, the members themselves can virtually assure that it will be carried out.

Outside of voluntary dissolution, the main cause for the failure of a syndicate is opposition from consumers. The Pig Iron Syndicate, which became quite domineering about 1900, broke up after resentful consumers combined against it and refused to pay boom prices and to accept full deliveries after a slump. While the Pig Iron Syndicate was one of the few to weather the post-war period, it has been reduced to a sales syndicate and one which deals with only such iron as appears upon the open market, its sales quotas forming a very small fraction of the total production of its affiliated plants. While it does set up a nominal quota for iron to be used for making steel in the same plant, the quota is so high that it is said to place no practical restriction upon output. This syndicate, moreover, has always been a rather loose one, being composed of from three to five local syndicates whose interests have often clashed. It was further handicapped, because its fuel supply was controlled by a powerful syndicate and because its ore had largely to be imported. The final stroke was the gradual integration and absorption of the furnaces by the steel industry so as virtually to eliminate purely merchant furnaces. Though now overshadowed completely by the Steel Works Syndicate, it continues to function separately within its own sphere, even to the granting of export bounties (now 6 marks per ton) to machinery and other manufactures.

New Steel Trust Controls Half of Capacity of Syndicate

The newly formed German Steel Trust is further evidence of the growing eagerness of German companies to unite. This amalgamation, probably the largest ever attempted in the German iron and steel industry, was agitated by the late August Thyssen many years before the war. Opposed both by the Kloeckner and the Stinnes interests, the idea was abandoned, temporarily, in 1910, only to be revived after the war. The Krupp plants, which were involved in many of the preliminary discussions of the merger, eventually decided to retain their long established identity, although, it is said, they will cooperate with it as well as with the steel cartel. Even without Krupp the new corporation covers the bulk of the iron and steel output of the Ruhr region and, since it brings under unified control almost one-half of the capacity quotas of the Steel Works Syndicate, it needs only the cooperation of Kloeckner or Hoesch or, lacking either of these, of a few of the smaller concerns, to dominate the syndicate and, hence, the entire industry.

Government Fosters Cartels

American observers are naturally interested in the attitude of the German Government and of the public toward these cartels, which are quite frankly designed to restrain trade and to limit competition at home and abroad. In 1903 the Imperial Reichstag made an inquiry into the syndicates, and similar inquiries were repeated from time to time. Although the evidence was kept partly confidential, these investigations brought forth much information as to the inside working of these bodies and doubtless served to correct abuses through the medium of exposing them and explaining them to the public. Ordinarily, however, the spirit of such inquiries was precautionary rather than regulatory, because the Government has never been hostile to the development of the cartels. While the Imperial Government's attitude was virtually neutral, the present republican Government not only accepts them as part of the economic structure of the nation, but actually, in the case of the National Coal Syndicate, participates in them. The coal cartel was formed in 1893 to represent the Ruhr industry. Like the Pig Iron Syndicate, it continued through the post-war period, although it too became dominated by the integrated steel firms until fully one-third of the output was absorbed by the self-consumption allotments. A number of independent coal operators, growing dissatisfied with the syndi-

cate's policy toward merchant production, preferred to remain outside. Since the dissenting owners were compulsorily embodied in the syndicate by the Government in 1924, it is clear that the present policy is one of encouragement. Disputes between the government and the cartels are adjusted in the Federal Economic Court, and legislation is being considered whereby the Minister for Industry shall have more power over the cartels, especially those which, like the Potash Syndicate, are compulsory.

While the cartel system forms a convenient target for many complaints against general conditions, the public accepts these organizations as probably useful, or at least inevitable. Even the spread between domestic and export prices receives little criticism except now and then when it appears too great. In the steel trade these prices are now fixed in a joint conference held monthly by the representatives of the producing and consuming syndicates, which process should go far toward further reducing complaints.

Elimination of Metalloids Traced

Basic Open-Hearth Process Studied for History of Changing Analyses —Bath, Slag and Ladle Characteristics

BY C. H. HERTY, JR.

ONE of the papers read before the February meeting of the American Institute of Mining and Metallurgical Engineers, and reported briefly at page 547 of our Feb. 25 issue, dealt with the rapidity and completeness of elimination in metalloids, as observed in a heat in a standard 100-ton stationary open-hearth furnace at the Lackawanna plant of the Bethlehem Steel Co. Accompanying this paper were 18 lantern slides, which, of course, will be reproduced in the *Proceedings* of the Institute. Four of these illustrations, however, are of such direct interest to open-hearth and other steel men that they are reproduced herewith. Fig. 1 shows elimination of carbon, manganese, phosphorus, silicon and sulphur from the bath during the progress of the heat from the time the hot metal was charged until the heat was tapped—a matter of 8 hr. Fig. 2 shows the change in the slag in its content of sulphur, lime and silica over that same period of time. Fig. 3 traces the changes in slag composition of MnO, FeO, MgO, Al_2O_3, Fe_2O_3 and P_2O_5. Fig. 4 reverts to the composition of the steel and shows the change in metalloid constituents, beginning nearly an hour before the heat was tapped and running through to the end of teeming the ingots. This includes the sharp rise in manganese contents after the addition of ferromanganese 3 min. before tapping the heat. It shows the jump in carbon due to the addi-

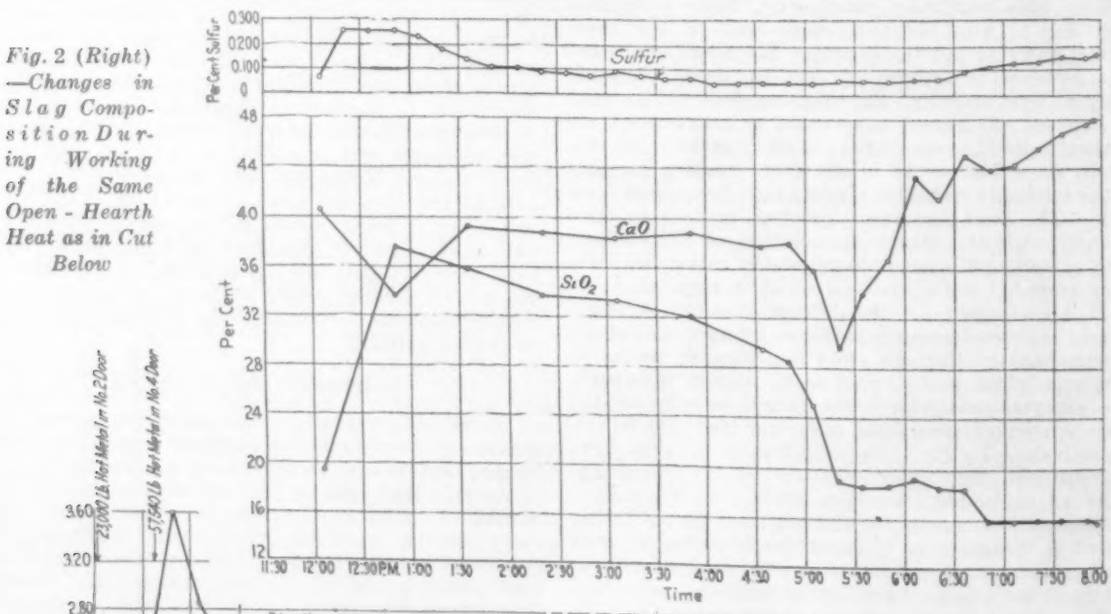


Fig. 2 (Right) —Changes in Slag Composition During Working of the Same Open-Hearth Heat as in Cut Below

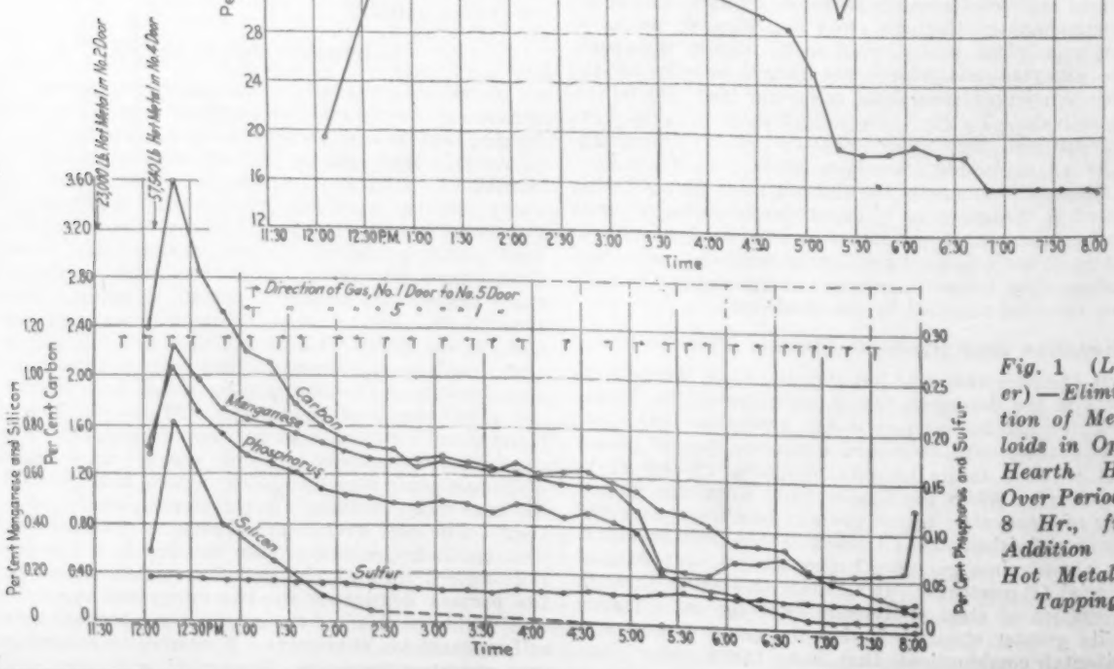

23,000 Lb. Hot Metal in No. 2 Door
57,540 Lb. Hot Metal in No. 4 Door
Direction of Gas, No. 1 Door to No. 5 Door
Per Cent Manganese and Silicon
Per Cent Carbon
Per Cent Phosphorus and Sulfur
Manganese
Carbon
Phosphorus
Silicon
Sulfur
Time
11:30 12:00 12:30PM 1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30 6:00 6:30 7:00 7:30 8:00

Fig. 1 (Lower) —Elimination of Metalloids in Open-Hearth Heat Over Period of 8 Hr., from Addition of Hot Metal to Tapping

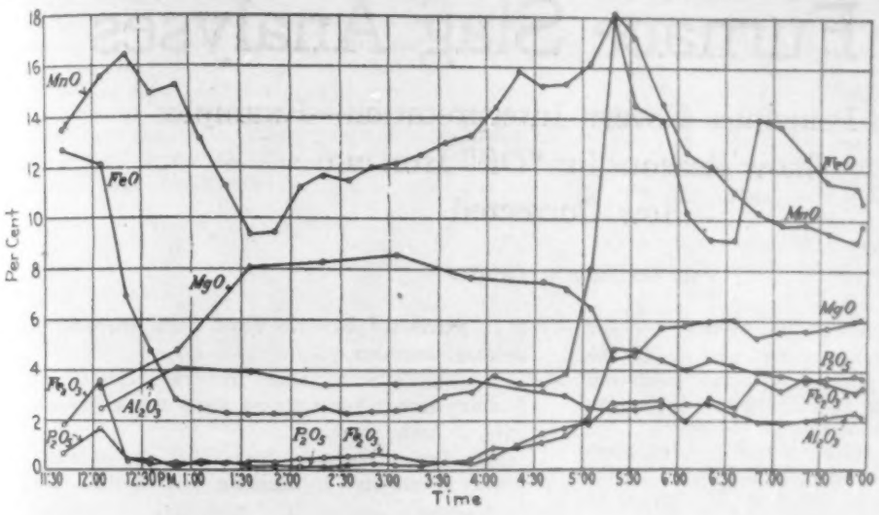
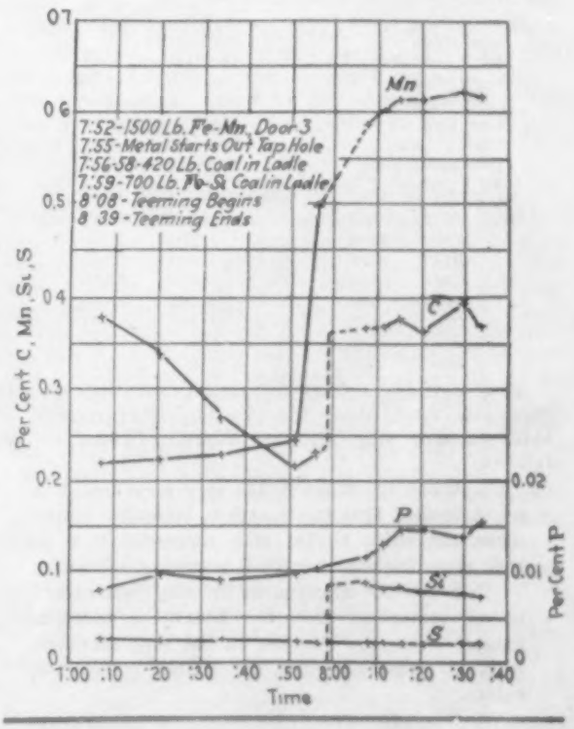


Fig. 3.—Changes in 8¼ Hr. in the Composition of Six Main Elements in the Furnace Slag

Fig. 4.—Changes in Five Metalloids in the Steel During the Finishing of the Heat and Teeming of the Ingots. Movements of manganese, phosphorus and silicon are noteworthy (Below)



tion of coal in the ladle, as well as the small increase produced by the ferromanganese, and it shows some changes in carbon, manganese, phosphorus and silicon contents during the teeming of the ingots. Both phosphorus and manganese rose moderately, while silicon declined and carbon showed an erratic tendency. Sulphur apparently underwent no change between the first ingot and the last.

This paper was reread at the Chicago meeting (April 13) of the open-hearth superintendents. It was pointed out in the discussion that ladle slag varies markedly between center and edge, as the edge is eroding the ladle lining. The question as to the most desirable residual manganese evoked a lively interchange of opinion.

Machine Tool Builders Announce Exposition Plans

The National Machine Tool Builders' Association has issued a preliminary announcement of the first national machine tool builders' exposition, to be held in the Public Hall, Cleveland, Sept. 19 to 24, 1927. The association states that plans are now under way for stimulation of selective attendance at the exposition. The general public will not be admitted and all visitors will register. In this way, the association hopes to attract only representatives of companies which use machine tools.

Plans for the exposition are in charge of a committee consisting of J. Wallace Carrel, vice-president Lodge & Shipley Machine Tool Co., Cincinnati, chairman; P. E. Bliss, vice-president Warner & Swasey Co., Cleveland; O. B. Iles, president International Machine Tool Co., Indianapolis; H. W. Dunbar, assistant general sales manager Norton Co., Worcester, Mass.; E. J. Kearney, secretary Kearney & Trecker Corporation, Milwaukee.

Steel Furniture Sales Decline

Orders received in July for steel furniture, as reported to the Department of Commerce by 33 manufacturers, showed a decrease of more than 10 per cent from June. The figures were $2,283,666, against $2,556,631. The July figures, however, were nearly 9 per cent above those for July, 1925, which stood at $2,105,133.

For the first seven months of the year, 1926 shows a lead of more than 20 per cent over 1925, the totals having been $18,654,834 and $15,422,942. Shipments in the first seven months were in each case between 1 and 2 per cent below orders. Unfilled orders at the end of July called for $1,665,222, against $1,535,166 at the end of June.

Steel shelving orders declined from $606,698 in June to $604,271 in July. Both figures were far above the $510,815 of July, 1925. For the seven months, orders have aggregated $4,318,480, against $3,770,174 last year. Shipments for the seven months this year were about 1 per cent above orders. Unfilled orders at end of July were $602,134.

Employees Receive $22,000 for Suggestions

Awards totaling $22,602 were paid to 2172 employees of the General Electric Co. during the first six months of the current year for suggestions, which ranged from safety devices for the protection of workers to improved methods of manufacturing. In all, 7080 suggestions were made, an increase of approximately 1500 over the first six months of last year. The awards, which ranged up to $500, were paid at the option of the recipient either in cash or G-E Employees Securities Corporation bonds, which yield 8 per cent so long as the original holder remains in the employ of the company.

The office and storehouse of Thomas P. Phelan, 156 Central Street, Fall River, Mass., structural steel, was badly damaged by fire recently. All blue prints and plans were undamaged.

Blast Furnace Slag Analyses

Fifteen Principles Govern Interpretation—Examples Show Reasons for "Off" Iron and How Corrected

BY WALLACE G. IMHOFF

TWO preceding sections of this article, in our issues of July 22 and Aug. 26, lead up to the establishment of 15 definite principles governing the interpretation of blast furnace slags. These are given in this (concluding) portion of the article.

Turning again to the factor of temperature, slags may be interpreted from a practical standpoint by the following general indications which can be checked by the actual chemical analysis of the slag.

High Melting Point Slags	Low Melting Point Slags
Low silica	High silica
High alumina	Low alumina
High lime	Low lime
Low magnesia	High magnesia
Low iron	High iron
High sulphur	Low sulphur
Low manganese	High manganese

In terms of chemical composition this would be:

High Melting Point Slags		Low Melting Point Slags	
SiO_2	30.00	SiO_2	37.00
Al_2O_3	20.00	Al_2O_3	10.00
CaO	52.00	CaO	36.00
MgO	3.00	MgO	10.00
Fe	0.25	Fe	7.00
S	3.00	S	1.00
Mn	....	Mn	....

It is perhaps well at this time to establish definite principles upon which the practical interpretation of blast furnace slag analyses depend. These are as follows:

1. When the silica in the slag decreases, it is an indication that the hearth is becoming hotter; when the silica in the slag increases, it is an indication that the hearth is becoming colder.

2. When the alumina in the slag increases, it is an indication that the hearth is becoming hotter; when the alumina in the slag decreases, it is an indication that the hearth is becoming colder.

3. When the lime in the slag increases, it is an indication that the hearth is becoming hotter; when the lime decreases in the slag, it is an indication that the hearth is becoming colder.

4. When the magnesia in the slag decreases, it is an indication that the hearth is becoming hotter; when the magnesia in the slag increases, it is an indication that the hearth is becoming colder.

5. When the iron in the slag decreases, it is an indication that the slag is becoming hotter; when the iron in the slag increases, it is an indication that the hearth is becoming colder.

6. When the sulphur in the slag increases, it is an indication that the hearth is becoming hotter; when the sulphur in the slag decreases, it is an indication that the hearth is becoming colder.

7. When the manganese in the slag decreases, it is an indication that the hearth is becoming hotter; when the manganese in the slag increases, it is an indication that the slag is becoming colder.

8. When the lime increases, the magnesia generally decreases; when the lime decreases, the magnesia generally increases. The general rule is that, when one goes up, the other goes down; it is extremely rare to have them increase or decrease together.

9. High-alumina slags are characteristic of foundry irons; low-alumina slags are characteristic of basic slags.

10. Typical foundry iron slags are generally low in silica, high in alumina, low in lime, high in magnesia, low in iron and high in sulphur. If manganese is present, it will tend to be low.

11. Typical basic iron slags are generally high in silica, low in alumina, high in lime, low in magnesia, high in iron and low in sulphur If manganese is present, it will tend to be high.

12. If the silica remains constant, the alumina and magnesia increase together as the lime decreases; if the silica remains constant, the alumina and magnesia decrease as the lime increases.

13. If the lime remains constant, when the silica increases the alumina will decrease; if the lime remains constant, when the silica decreases the alumina will increase.

14. The lowering of the fusion zone is indicated by a decrease of silica, alumina and iron, and an increase of lime and sulphur.

15. "Buckshot" is a direct result of free sulphur and may develop on either a hot or a cold furnace when there is a shortage of lime.

Some typical slag analyses will now be cited to illustrate the principles just given. Extreme "Off Iron," with "Buckshot," developed under the following condition of high silica and a shortage of lime on a hot hearth:

Iron		Slag	
Silicon	Sulphur	Silica	35.48
2.42	0.037	Alumina	13.32
2.52	0.040	Bases	48.49
1.86	0.044		
1.30	0.091	Other Conditions:	
2.00	0.067	20 lb. blast pressure	
2.05	0.075	600 deg. Fahr. top heat	
		160 lb. extra coke	

Lowering of the fusion zone from the middle of the furnace down into the hearth is well illustrated by the three slag analyses below:

	High	Starts Down	Down
Silica	34.78	33.48	33.38
Alumina	13.31	12.64	11.24
Bases	49.11	51.14	53.08

Extreme "Off Iron" with very high silica, high alumina and low bases is shown by the following analyses. The iron is extremely hot and high in sulphur.

Iron		Slag	
Silicon	Sulphur		
3.36	0.356	Silica	38.26
2.55	0.211	Alumina	16.54
3.72	0.213	Bases	42.22
3.95	0.235		
3.95	0.176		

The following analyses show the change of silica and alumina when the lime remains constant:

Iron		Slag	
Silicon	Sulphur		
2.88	0.038	Silica	33.80
2.97	0.036	Alumina	14.40
2.95	0.030	Bases	40.47
3.06	0.031		

Iron Silicon	Iron Sulphur	Slag	
2.57	0.026	Silica	35.20
2.17	0.030	Alumina	12.90
2.40	0.029	Bases	49.47
2.21	0.029		
1.86	0.034		

The two analyses below show the behavior of alumina and magnesia when the silica remains constant and the lime varies:

Iron Silicon	Iron Sulphur	Slag	
2.61	0.020	Silica	31.80
2.42	0.018	Alumina	16.50
2.26	0.022	Lime	39.50
2.31	0.020	Magnesia	9.50
2.14	0.019	Iron	0.35
2.46	0.019	Sulphur	2.18
	P 0.64	Mn 0.48	

Iron Silicon	Iron Sulphur	Slag	
2.05	0.026	Silica	32.00
2.02	0.020	Alumina	14.60
2.42	0.018	Lime	47.30
2.07	0.021	Magnesia	3.67
1.72	0.023	Iron	0.28
1.89	0.024	Sulphur	2.01
	P 0.60	Mn 0.40	

Two typical foundry iron slags are given below for inspection:

Iron Silicon	Iron Sulphur	Slag	
2.98	0.018	Silica	30.26
2.87	0.019	Alumina	18.50
2.80	0.016	Lime	40.10
2.67	0.014	Magnesia	8.22
2.42	0.014	Iron	0.38
2 44	0.017	Sulphur	2.36
	P 0.618	Mn 0.61	

Iron Silicon	Iron Sulphur	Slag	
2.18	0.028	Silica	31.90
2.03	0.035	Alumina	17.50
1.95	0.039	Lime	38.80
2.10	0.032	Magnesia	9.18
2.30	0.030	Iron	0.38
2.54	0.025	Sulphur	2.06
	P 0.64	Mn 0.51	

Two typical basic slags are also cited below for comparison:

Iron Silicon	Iron Sulphur	Slag	
0.98	0.035	Silica	33.80
0.87	0.031	Alumina	13.13
0.80	0.036	Lime	42.70
0.77	0.033	Magnesia	7.92
0.78	0.030	Iron	0.75
0.82	0.029	Sulphur	1.70

Iron Silicon	Iron Sulphur	Slag	
0.61	0.043	Silica	31.38
0.74	0.032	Alumina	13.84
0.92	0.030	Lime	46.40
2.01	0.022	Magnesia	5.55
1.92	0.025	Iron	0.45
1.80	0.028	Sulphur	2.22

It will be noted that the foundry irons are made from high-alumina slags and basic iron is made from low-alumina slags. This fact immediately classifies the slag analyses, when the practical conditions are to be interpreted without seeing the iron. The relation of the lime and magnesia is also well illustrated in these examples.

Sometimes it is extremely important to understand how to control the temperature of the hearth. This factor is often confused with burden change. A good rule to follow is never to change the burden when the hearth is cold. Things will look entirely different when the hearth becomes hot. A typical example of a hot, lean, extra-coke slag, and a cold, lean, extra-coke slag are given below. The principal causes of the trouble in the second case are a high fusion zone and a cold hearth; the trouble in the first case is a shortage of lime.

Hot, Lean Extra-Coke Slag

Iron Silicon	Iron Sulphur	Slag	
1.83	0.038	Silica	35.84
1.70	0.047	Alumina	13.66
1.72	0.053	Bases	48.21
2.31	0.053		
2.22	0.067		

Cold, Lean Extra-Coke Slag

Iron Silicon	Iron Sulphur	Slag	
2.42	0.037	Silica	35.20
2.52	0.040	Alumina	12.90
1.86	0.044	Bases	49.47
1.30	0.091		
2.00	0.067		

High wind; cold bottom
450 to 700 deg. Fahr. top heat
160 lb. extra coke
16 to 22 lb. air pressure
Takes stock only when checked

An extremely cold basic iron and slag are shown below. The troubles in this instance are an acute shortage of lime and a cold hearth.

Iron Silicon	Iron Sulphur	Slag	
0.16	0.066	Silica	33.48
0.65	0.037	Alumina	12.29
0.33	0.049	Lime	36.40
0.55	0.038	Magnesia	5.80
0.53	0.059	Iron	7.60
0.94	0.049	Sulphur	1.10
	P 0.146	Mn 0.54	

The principles by which the practical conditions can be interpreted when a complete slag analysis is available have been explained and illustrated. There might be a question as to what is the dividing line between foundry and basic slags. Of course, there is no sharp line, but a gradual transition from one into the other. For the conditions where the irons in this paper were made, above 14 per cent alumina in the slag produced foundry irons; below 14 per cent produced basic irons.

How to Tell When a Furnace Is Going "Off"

The question might also be asked, "How can you tell from the complete slag analysis when a foundry iron furnace is going 'off,' and how can you tell when a basic furnace is going 'off'?" Foundry irons require high silicon in the iron. Therefore, when the silicon in the iron drops and the silica in the slag increases, the furnace is becoming colder. This condition is verified by a decrease of sulphur in the slag and an increase of sulphur in the iron. When the hearth is growing colder the iron in the slag rises. Foundry irons vary from 0.30 to 0.50 per cent iron, the lower value being an indication of a hot hearth.

For the conditions where the basic iron cited was made, 34 per cent silica in the slag produced a good basic iron. Therefore, if the iron becomes too hot it is reflected in the slag analysis by a decrease of silica in the slag, by a decrease of iron in the slag and by an increase of sulphur in the slag. If the furnace becomes too cold it is indicated by an increase of silica and iron in the slag, and a decrease of sulphur. The change is also shown by a change, or a lowering, of silicon in the iron and an increase of sulphur.

The essential feature is to be able to distinguish between when the furnace needs lime on or off the burden, and when a change of hearth temperature is all that is necessary. It is hoped that the examples cited in this paper will help to show which method of procedure should be followed under most of the ordinary conditions found in practice.

Metal trades employment in July made a better showing than in June, according to the monthly Labor Barometer of the National Metal Trades Association, Chicago. Comparable figures showed 622,435 employees in July and 612,108 in June. Both months, however, were below the spring average. May had 637,671 employees, April 653,643, and March 656,731. About 10,000 of the decrease in June represented temporary inventory shutdowns.

Domestic sales of oak leather belting in July are reported by the Leather Belting Exchange, which represents about 60 per cent of the total product, at 327,855 lb. valued at $564,238 or $1.72 per lb. The sales were lower than in the preceding month or in the corresponding month of 1925. June sales were 346,739 lb., valued at $595,351, or $1.72 per lb., while in July, 1925, the total was 345,709 lb., valued at $587,706, or $1.70 per lb.

NEW MODEL "LO-SWING" LATHE

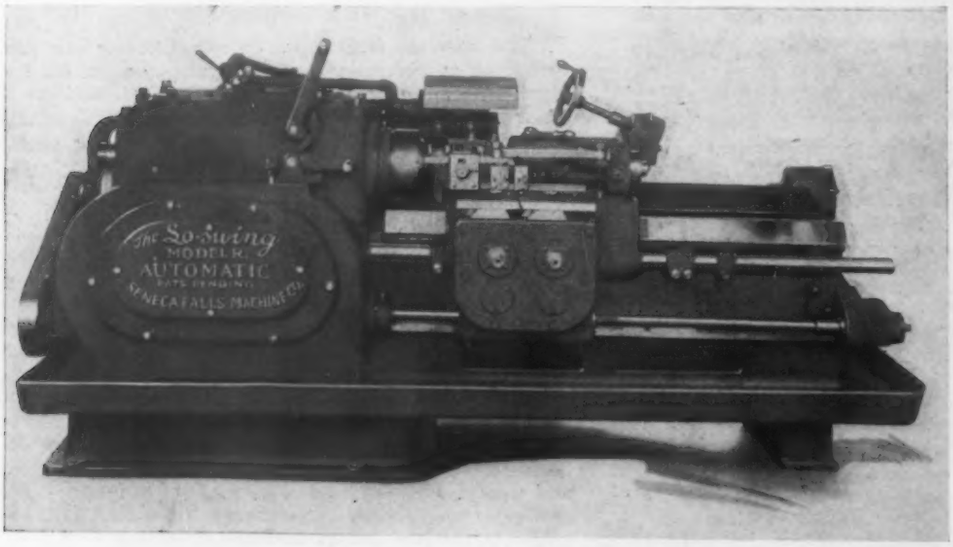
Heavier Than Previous Design and Arranged for Full Automatic Operation

A new Lo-Swing automatic, designated as the Model R, and incorporating several improved features, has been placed upon the market by the Seneca Falls Machine Co., Seneca Falls, N. Y.

As in the previous models, rigid support for the work and tools is provided, but the new machine is heavier and is entirely automatic in its operation. It is intended for use on clutch shafts, stem pinions, steering knuckles, crank shaft ends and on similar shaft work held between centers. Although entirely automatic, the arrangement of the machine is such that it can be set up conveniently for short runs, and is thus adapted for both large and small production.

A unique feature is in the longitudinal and cross traverse of the front carriage and slides, and the cross traverse of the rear carriage, which are secured by means of cams. Provision is made for moving the tools rapidly to the work, and after the operation is finished, the tools are rapidly traversed back to the starting position and the machine stops. For ordinary run of work it is not necessary to change the cams. All cams is transmitted to a common feed shaft, which actuates both the longitudinal and cross-feed cams through worm and worm gearing. The longitudinal feed to the front carriage is obtained by large plate cams which actuate a pull rod through a large diameter roll of the roller bearing type. This pull rod goes through the front carriage, which may be set in any position along the length of the pull rod by means of clamps. The common feed shaft passes through the lower portion of the carriage and drives worms which are mounted on taper roller bearings, and these worms actuate cams through worm and spur gears. In the machine here illustrated, the carriage is equipped with two cross slides. Each slide is driven as a separate unit, and one, two or more cross slides can be employed, each of which may be actuated independently of the others.

From the common feed shaft, power is transmitted to the rear of the machine through a cross shaft and worm and worm gearing to the back squaring attachment. The tool slide of this attachment is actuated by a plate cam running against a roll which is mounted directly back of the tools, so that there is no overhang. With this arrangement, when the machine is once set, all cross and longitudinal tool movements are synchronized, although provision is made for convenient setting of the various slides when changing from one job to another. Rapid traverse to the tool slides is obtained by throwing a clutch, an adjustable cam being provided for throwing this clutch at the proper time. It is pointed out that with this arrangement all tools are brought rapidly to the cutting position, and upon completion of the work are quickly returned to the starting position, when the main clutch on the pulley shaft is thrown out automatically, stopping the machine and the flow of cutting lubricant.



Longitudinal and Cross Traverse of the Front Carriage and Slides, and the Cross Traverse of the Rear Carriage, Are Secured by Means of Cams. For the usual run of work change of cams is unnecessary

and gears are entirely covered and are lubricated automatically.

The machine is arranged for either line shaft or motor drive, the motor being mounted on the headstock. From the line shaft or motor the drive is through a constant-speed pulley and multiple disk clutch. The shaft carrying the pulley has an outer support and runs in tapered roller bearings. From the pulley shaft the power is transmitted to the spindle through a pair of inclosed pick-off gears and through hardened chrome-nickel steel gears, all of which gears have helical teeth. The spindle is large and is provided with a large hole throughout its length, so that air chucks may be used if desired. The rear end of the spindle is threaded to take an air cylinder for the air chuck. The nose of the spindle is 8 in. in diameter.

Longitudinal and Cross-Feed Arrangement

Two spindle speeds are obtainable automatically by means of a clutch, which is controlled by an adjustable cam. This cam is graduated so that the spindle speed may be set to advance or retard after the carriage has traveled the desired length. Power for longitudinal and cross-feed is taken from a shaft adjacent to the spindle, through a worm and worm wheel, and

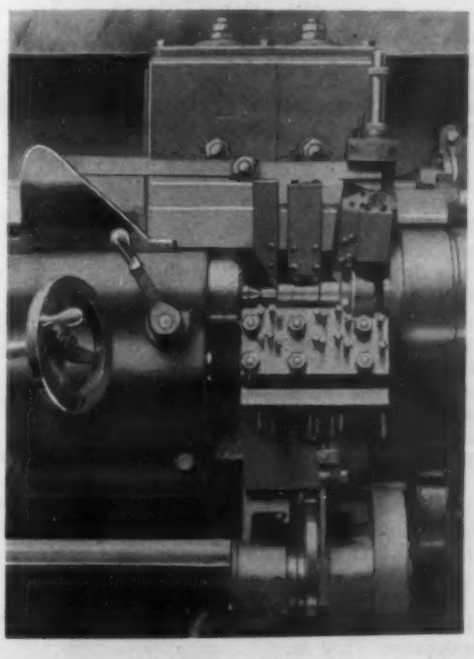
The rear cross slide and the tailstock are mounted on a rear shelf, the front edge of which is approximately under the center of the work, which is stressed as eliminating spring due to overhang. The tailstock is large. The tailstock spindle is 4½ in. in diameter and contains a live center, which is mounted on roller bearings, front and rear, these bearings being 16 in. apart. The tailstock spindle is advanced to and from the work by means of a convenient hand wheel. Provision has been made for actuating the tailstock spindle by means of an air cylinder if desired.

All important bearings on the machine, with the exception of the main spindle bearings, are roller bearings, the main spindle bearings being bronze and tapered on the outside for adjustment. All gears and bearings in the headstock and carriage are lubricated by means of oil pumps of the geared type. The front

carriage is mounted on Vee-ways, which are plated with hardened steel strips 3½ in. wide. The front carriage is gibbed at its lower portion.

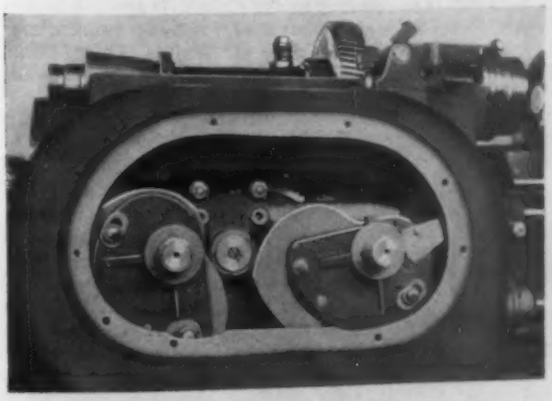
Conventional or Special Tooling Employed

The tooling employed may be the conventional form used on standard Lo-Swing lathes or special tooling. In the illustration herewith, the machine is tooled up



Either the Conventional Tool Used on Lo-Swing Lathes, or Special Tooling May Be Employed

for machining the first operation on a stem pinion, the tapered portion being machined by a tool actuated by a template cam. In this operation the second slide on the carriage carrying the tool for turning the thread end is brought into position after the carriage has traveled far enough to permit this tool to clear



Longitudinal Feed to the Front Carriage Is Obtained by Plate Cams Which Actuate a Pull Rod

the tailstock spindle, thus making it unnecessary to use long tail centers. In the second operation the forward carriage takes a preliminary cut from the small end, which in the rough forging is squared. After this end is rough machined, the carriage automatically returns to starting position, and the tools are fed into the position of taking the finishing cut. This stem pinion is machined from the rough forging to grinding size in one cut, the usual practice being to take two cuts on this type of work. The rate of production on this piece is said to be 30 per hr.

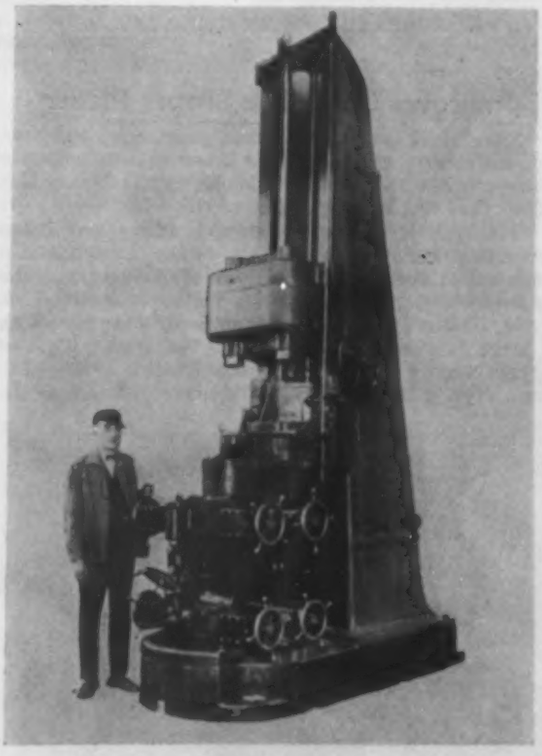
The Chateaugay Ore & Iron Co. has placed a contract with Freyn Engineering Co., Chicago, for two new hot blast stoves for its furnace at Standish, N. Y.

Machine for Deep Boring of Cast Bronze Ingots and Other Material

The machining of 2½-in. holes in cast bronze ingots, 40 in. long, which are subsequently made into seamless tubing, is the function of the machine here illustrated. Although designed especially for this work the machine, developed by the Hoefer Mfg. Co., Inc., Freeport, Ill., is adapted for deep hole drilling of other pieces.

The machine is made up of a base, column, two-spindle head, and a rotating trunnion equipped with work-holding fixtures.

The base is deep and heavily ribbed, and contains a pump for coolant. The section around the trunnion is



Two of the Four Work-Holding Fixtures Are Unloaded and Loaded While Two Ingots Are Being Machined

arranged to receive the chips, additional chip space being provided in this particular case by setting the machine over a pit. The column is of heavy channel section with three cross ribs to prevent distortion. On the front of the column are ample ways, scraped to provide bearing for the head, and an overhanging arm on the column provides the upper bearing for the trunnion, the feed box and guide bearings for the boring bar.

The driving motor is mounted on a platform on the column, and power is transmitted through direct connection from motor to driving piston. The latter is a 2-pitch Micarta bevel pinion, which meshes with a bevel gear fastened to a large vertical splined shaft. This shaft drives the main driving gear in the head by means of a heavy sliding key, the latter being fastened in the gear. Ball thrust bearings are used to minimize friction.

The two-spindle head is of heavy construction. The spindles are of alloy steel and are hardened and ground on essential dimensions. Spindles are equipped with No. 4 Morse taper and provided with bronze bushings and ball thrusts. All gears within the head are of steel, hardened and cut with 4-pitch teeth. The main driving gear is of quill construction, the hub extending the full length of the head, thereby decreasing friction on the driving key. The head operates in a bath of oil.

The feed mechanism is housed in the feed box contained in the overhanging arm and consists of a series of hardened gears and clutches. The feed is transmitted through a lead screw mounted in bronze bear-

ings with large ball bearings absorbing thrust in both directions. Feed control is obtained through a lever, which is conveniently located. On the trip rod are two adjustable collars for determining the length of the work stroke, while safety collars permanently fixed at both ends prevent damage to the machine. The feed can be started, stopped or reversed at will by the operator, but it is arranged so that it will reverse automatically at the end of the down stroke and will stop automatically at the end of the rapid reverse. A large wheel on the right-hand side of the column of the machine permits operation of the head by hand.

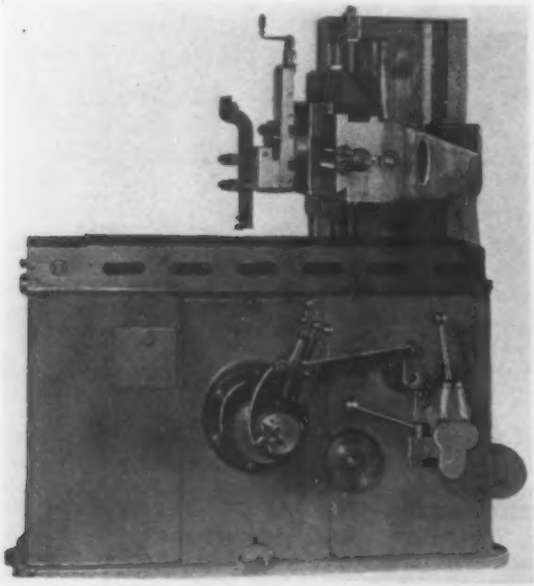
The rotating trunnion contains four work-holding fixtures. These consist of four hardened steel V's operated simultaneously by right and left-hand screws through small hand wheels, automatically centering the work under the spindles. The V's slide in scraped bearings. The trunnion rotates on a large roller bearing and has a bearing below in the machine base and above in the overhanging arm. The trunnion is located by a large hardened and ground plunger with bearings in a hardened steel bushing and is operated through the horizontal double-handled lever shown in front of the machine. This lever also connects with a toggle which locks the trunnion after it is indexed. Two tubes are bored simultaneously while the operator removes two finished pieces from the fixture and inserts two pieces to be bored.

The floor space occupied by the machine is 40 x 98 in. The height is 160 in. and the weight 16,000 lb.

Improves Open-Side Shaper Planer

More rigid construction than previously, and convenient control are features of a new open-side shaper planer, which has been brought out by the Whipp Machine Tool Co., Sidney, Ohio.

The base of the new machine is heavy and it has cross ties from wall to wall. A corner brace has also been added between the pad for the column and the adjacent side. The column is a hollow tube with 1 in. walls, internally ribbed, and is secured to the base with a large key and six 1-in. bolts. The cross rail is of approximately box section, is heavy and is arranged to hook around the column in a manner intended to de-



The Machine Has Been Strengthened and Improved Features Incorporated

velop its full strength. The saddle and its parts are heavy and in strength are proportional to other parts of the machine.

The bull gear is a steel forging and is shrunk, bolted and pinned to the semi-steel center. It weighs 480 lb. This gear has helical teeth of coarse pitch. The gear box is arranged as a unit which may be removed conveniently for inspection, and all gears are of steel. It is oil tight and lubricated separately from other units of the machine.

The table is of box section with twice the depth of the table on the former machines, and it is somewhat heavier. The clutch is of dry-plate type and is said to be powerful enough to start and stop the machine in the middle of the heaviest cut it can take. A brake is provided with the clutch to stop the table quickly. The vise is of single-screw swivel-base type and weighs 380 lb.

The gear shift and start and stop lever are contained in one unit. The feed is adjustable while the machine is running. All controls, adjustments and clamps are arranged so that they may be reached conveniently from the operator's position.

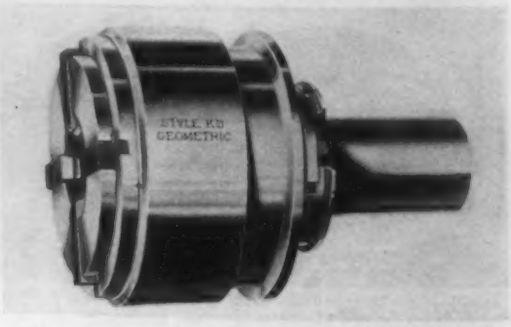
The drive of the machine may be by motor and silent chain or by single-pulley from a line shaft. For the motor drive a 7½-hp. or 10-hp. 1150-r.p.m. motor is recommended, the smaller motor being for the 26-in. machine and the larger motor for the 36-in. machine. The motor is mounted on a bracket and off the floor and is suitably guarded. Push button control can be had.

The table travel of the 36-in. machine is 36½ in. The maximum distance under the cross rail is 18 in. The total cross feed is 25 in., down feed 9 in. and the maximum, horizontal and vertical feed is ⅝ and ¼ in. respectively. The table is 62¾ in. long and 17½ in. thick. The height of the table from the floor is 43½ in. Six strokes, ranging from 5.5 to 43 per min. are provided for the table. The net weight of the machine is approximately 7200 lb.

Rotary Opening Die Head Adapted for Shoulder Threading

A new rotary opening die head, which is said to have been developed to meet the demand for a flange trip type of the head that will trip at precisely the point for which it is set, is being placed on the market by the Geometric Tool Co., New Haven.

This tool is designated as the style K-D and is adapted especially for shoulder threading. It is of small diameter, and is designed to swing on Gridley, Acme, Cone, New Britain and similar machines, also on drill presses,



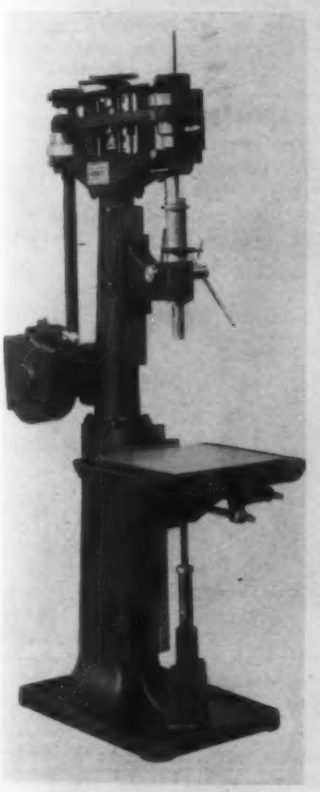
The Chasers May Be Inserted and Removed Without Use of Tools

threading machines and practically any live spindle. Five sizes—5/16 in., 9/16 in., 1 in., 1¼ in. and 1½ in.—are regularly available, and other sizes to order. The chasers interchange with the company's style K heads of corresponding size.

One yoke opens and closes the die head. The chasers can be removed without the use of a screw driver, by pressing down the stop lever and lifting the chasers out. The tool is hardened and ground and is completely inclosed. A grooved sleeve is provided for operation of the yoke in opening and closing the head. A feature stressed is the large chip clearance. The chasers extend beyond the front of the die head without overhang and are not held in place by screws.

Single and Multiple-Spindle Ball-Bearing Sensitive Drills

New high-speed ball-bearing sensitive drills, added recently to the line of the Fosdick Machine Tool Co. of Cincinnati, are shown herewith. These machines are intended for rapid and accurate production. They are designated as the Nos. 3 and 4, and are available in the single and multiple-spindle types, with or without power feed, motor drive, pump and fittings and tapping attachments. The spindle is of spindle steel, and the sleeve of steel of suitable analysis.



High-Speed Sensitive Drill

The No. 3 bench-type drill may be equipped with from one to four spindles, and the No. 4 pedestal type can be furnished with from one to six spindles. Both machines are built in 16 and 24-in. sizes and have a capacity of ¾-in. drilling and ¼-in. tapping. All revolving parts are mounted in ball bearings, which are protected with dust-proof metal oil retainers.

The machines are equipped with 4-step cones. The belt-driven drills are furnished with tight and loose pulleys and swiveling belt guard and shifter. The drive is through spiral gears running in oil. The shifting of the belt on the 4-step cone is accomplished by means of a central cam drum. Before shifting the belt the tension is taken from the belt automatically by the operation of the idler cam, which releases tension on the idler. An adjustable spindle collar mounted on the spindle sleeve can be set to disengage the feed at any desired depth. The table of the No. 4 pedestal type machine is adjustable by means of telescopic screws, being elevated or lowered and clamped by means of a lever at the front of the table. The head is adjustable on the column and can be rigidly clamped in position.

Holding Power of Wood Screws

WASHINGTON, Aug. 27.—The holding power of 10,000 screws driven into seven different kinds of wood is described in a new publication of the Bureau of Standards. Accurate data on this subject were needed urgently by industries using screws in construction and previous information was meager, uncertain and obsolete, a bureau statement said. The research was completed at the Bureau of Standards by the use of specially equipped testing machines which pulled the screws from their setting and measured their holding power during the process. The woods used in the tests included such common construction woods as yellow poplar, cypress, sycamore, North Carolina pine, Georgia pine, hard maple and white oak.

The latest addition to the Clairton, Pa., by-product coke plant of the Carnegie Steel Co., consisting of four batteries of 87 ovens each, calls for approximately 15,500,000 silica and fire clay bricks, which will be furnished by the General Refractories Co.

New Line of Power Presses for General Manufacturing Use

A new line of power presses incorporating improved features and superseding the line of inclinable presses heretofore offered by the company has been announced by the Zeh & Hahnemann Co., 182 Vanderpool Street, Newark, N. J. Instead of being referred to as inclinable presses the new machines are called reclinable power presses, which is regarded as a more precise term.

The machines are available in seven sizes exerting from 4 to 50 tons pressure. They are for general manufacturing purposes and are designed to meet the tendency toward the use of heavier and more substantial dies, which requires higher die space. The frames of the machines are heavier and stronger than those of the company's previous line.

The clutch of these presses is of the non-repeating or single-stroke type, the arrangement being such that the press will not make a second stroke even if the operating treadle is not released, although if it is desired to use the press for the continuous work, such as in blanking, it can be done by the throwing over a small lever. For additional safety a finger guard, which descends before the clutch is engaged, is provided. A treadle guard is incorporated to protect the operator from accidental strokes caused by pieces falling on the treadle, this guard also providing a foot rest for the operator. The clutch is of simple design; all parts are of steel and striking surfaces are hardened. It can be taken apart conveniently for inspection. The

Safety Devices Have Been Incorporated, and the Machine Made Stronger

flywheel is of web type, bronze bushed and has continual lubrication. The No. 4½ and larger machines have a self-releasing brake and tie rod lugs are provided on these larger presses, adapting them for heavy stamping work. The machines are arranged to recline at an angle of 40 deg., and the frame being pivoted in front, the working height remains practically the same in all positions. The reclining mechanism works easily and the frame is supported continuously by the elevator screw.

An important improvement, available as an extra, is an adjustable stroke device, which can be applied conveniently and without dismantling any parts. If

desired, the machines may be furnished with a two-lever or "point of operation" operating device instead of the foot treadle and finger guard. In assigning size numbers to these machines the company has used numbers which when squared give the normal tonnage exerted by the press. The No. 5 press, for instance, exerts 25 tons pressure. The weight of the smallest press, plain, is 650 lb., and of the largest 6500 lb. The floor space, right to left, front to back is 24 x 28 in., and 52 x 60 in., respectively, and the height from floor to center of shaft is 51¾ in. and 97 in., respectively.

Foundry Equipment Shipments Gain, Sales Decline

Sales reported for the month of July by 14 members of the Foundry Equipment Manufacturers' Association, totaled $378,163, as compared with $407,940 for June, or a loss of 7 per cent. Sales totals have declined continuously since March. July sales showed a decrease of 6 per cent from the total reported for July, 1925. July shipments, at $448,390, were 7 per cent larger than those for June and 20 per cent larger than for July a year ago. Orders on hand Aug. 1 totaled $411,119, as compared with $511,290 on July 1, a loss of 19 per cent.

Rotating Attachment on Friction Saw Facilitates Cutting Billets

Equipment in use at the plant of the Willys-Overland Co., Toledo, for cutting 3 x 4½ in. billets into 5 in. lengths is here illustrated. The cut pieces are subsequently drop forged and the forgings used in the company's four-wheel brake assembly.

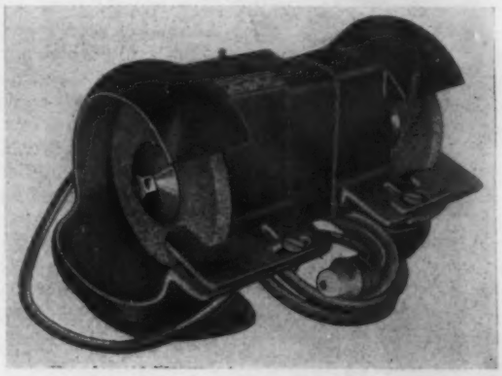
The machine employed is the No. 4 high-speed friction saw marketed by Joseph T. Ryerson & Son, Inc., Sixteenth and Rockwell Streets, Chicago. A feature is the power-driven rotating attachment with which the machine is equipped, the attachment serving to rotate the stock while the cut is being made. In this manner the saw blade contact is reduced to a minimum in cutting heavy sections. The attachment is standard equipment and is available for cutting large sections on any of the Ryerson saws. The saw itself is driven by a 75-hp. motor.

The previous method employed was cutting these billets hot with a hot chisel under an air hammer. In addition to speeding up production, it is claimed that the equipment illustrated produces a clean cut free from distortion of the metal. This is stressed as important when upsetting forgings, as elimination of distortion of the fiber of the steel makes for stronger parts, free from defects. The cutting time is 25 sec. and the handling time between cuts 15 to 20 sec.

Small Tool Grinder of Flat-Front Type

A No. 75 motor-driven tool grinder, arranged for use in connection with electric light sockets, 110 or 220 volt single-phase current, has been added to the line of Forbes & Myers, Worcester, Mass. Because of the absence of brushes, commutator, centrifugal device and clutch, it is believed that the motor employed in the machine will be as free from trouble as the three-phase motors for power circuits.

The machine is of the flat-front type, the flat being but 1⅝ in. from the center of the shaft, which permits a 6-in. wheel to project well in front of the motor. The motor is of ½ hp. and is fully inclosed. The rotor, the only moving part, is of the simple squirrel cage induction type used on three-phase motors. It consists of an iron core on a steel shaft. Through the core



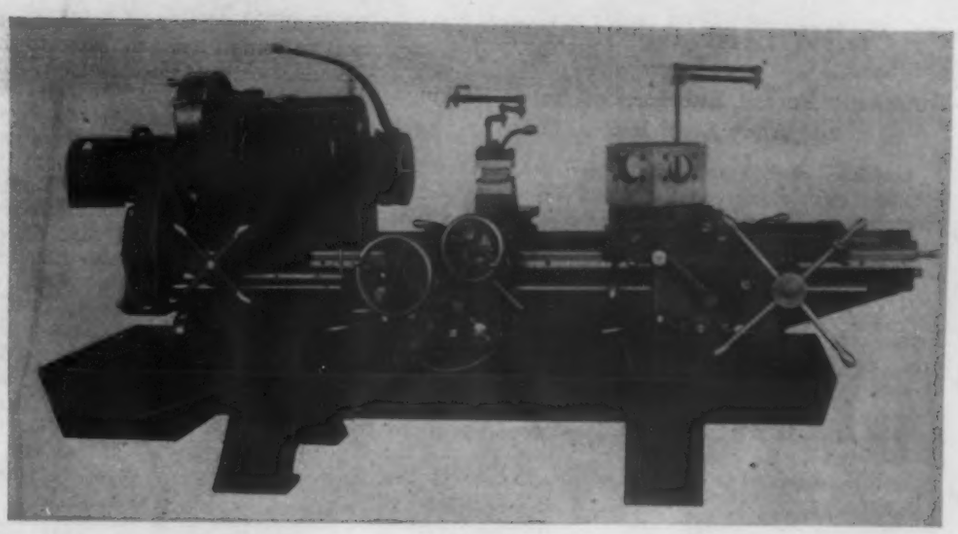
Tool Grinder Arranged for Connection to Lighting Circuit

are slots filled by aluminum bars, these bars being torch welded together at each end, making the rotor construction as solid as a single piece.

The stator is of the usual laminated type with slots for the winding, but there are no wires at the front. The main coil is of heavy wire extending from top to bottom of the stator, and receives its current directly from the line. An auxiliary coil of a larger number of turns of finer wire, extending but half way across the stator, receives its current indirectly from a condenser mounted at the rear of the motor. Both windings are in use continuously, and each delivers its share of the power. In a test, the motor was overloaded 30 times within an hour, and kept from turning for a minute each time. It is claimed that, although the motor was hot, it was not injured.

Ball bearings are employed and are packed in sufficient grease for three months' continuous use. The tool rests are flat, and are adjustable in two directions. Six feet of cord and plug are standard equipment.

Friction Saw with Power-Driven Attachment for Rotating the Stock While Being Cut. In cutting heavy sections, the saw blade contact is thus minimized



Multiple-Disk Clutches Operating in Oil Control Forward and Reverse Movements of the Spindle of the Improved Foster Turret Lathe

Improved Features Incorporated in Universal Turret Lathe

Heavy-duty multiple-disk clutches that operate in oil and serve to control the forward and reverse movement of the spindle is one of several features of an improved 2-B universal turret lathe which is being placed on the market by the Foster Machine Co., Elkhart, Ind. The power rapid traverse unit on the turret slide is also equipped with similar clutches.

The thrust load of the spindle is carried by a heavy-duty ball-thrust bearing. Another feature is the split-ring turret binder, which entirely surrounds the turret and clamps on a ledge of almost equal surface, thus bringing the clamping action almost directly under the tools.

The shafts carrying the sliding gears are splined, the use of sliding keys being eliminated. These shafts are of chrome-nickel steel, heat treated. All gears in the head are of forged steel, heat treated, and operate in a continuous bath of oil. The spindle is a steel forging, heat treated and ground to its final size. Twelve reversible spindle speeds are obtainable. These range in geometrical progression from 16 to 325 r. p. m. With the exception of the worm gear, all gears in the power feed units are of steel and all gears run in oil. Twelve feeds are obtainable for each unit. The bed has been lengthened 12 in.

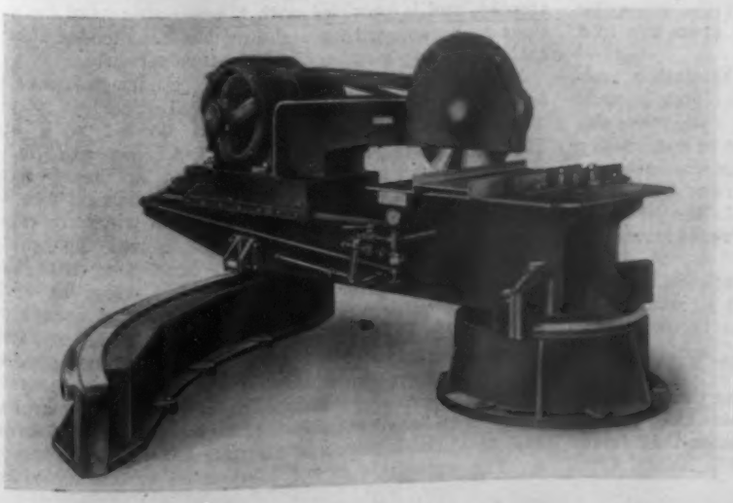
The machine swings 22 in. over the bed and 13½ in. over the cross slide. The round bar capacity through the automatic chuck is 3¼ in. The longitudinal feeding movement of the carriage is 47 in. and that of the turret slide is 44 in. The maximum distance between the face of the hexagon turret and the spindle nose is 54 in. The company's improved No. 1-B universal turret lathe, which swings 17 in. over the bed, was described in THE IRON AGE of June 17.

Cut-off Saw for Junior Beams and Other Sections

A high-speed metal cut-off saw, developed especially for the rapid cutting off, mitering and coping of the new Jones & Laughlin Junior beams, stair stringers and various other pressed and rolled metal sections, has been placed on the market by the Hunter Saw & Machine Co., Fifty-seventh and Butler Streets, Pittsburgh. Rapid operation is claimed for this machine, which is designated as the No. 2, 12-in. Junior beams being cut off in 5 seconds and a 6-in. beam in 3 seconds.

The machine is mounted on a section of a turn-table, as shown in the illustration, which permits it to be swung at an angle, and facilitates making angular cuts on beams of 50 ft. or 60 ft. lengths. The table is rotated by a crank handle (not shown in the illustration) at the front end of the machine through a pair of bevel gears and a spur pinion meshing with the gear on the outer edge of the track. After being set to the angle desired, the table may be clamped rigidly by a quarter turn of the crank handle.

The toothed saw used is 24 in. in diameter and is driven by belt from a 15-hp. motor, the motor and saw being mounted on a carriage equipped with rollers, as shown. The power feed is of the motor-driven hydraulic type, with the piston rod of the hydraulic cylinder attached directly to the saw carriage. The hydraulic pump and the motor are mounted on the machine, making it entirely self-contained. Push-button control is provided for both the main drive and hydraulic feed motors, the push button being located so that the machine may be conveniently controlled at all times. The saw arbor is mounted on double-row, deep-groove ball bearings in oil-tight housings. The belt and saw blades are protected by steel guards, the belt guard being arranged so that it can be quickly removed and an endless belt applied without dismantling other parts of the machine. The motor support is provided with an adjusting screw to give the belt the desired tension.



The Turn-Table Permits the Cut-Off Saw to Be Swung at an Angle, Which Facilitates Making Angular Cuts on Long Beams

NEW LINE OF SHAPERS

Automatic Forced Lubrication, Roller Bearings and Alloy Steel Helical Gears

Increased weight and power, use of tapered roller bearings on high-speed shafts and the incorporation of an automatic oiling system are features of a new shaper being marketed by the American Tool Works Co., Cincinnati. Other features include multiple splined shafts; multiple disk clutch and brake; alloy steel hardened helical gears; V-type ram; improved table support, two-piece bull wheel; and centralized control. The new machine, named the "auto-oiled" shaper, is available in several sizes, both heavy and standard pattern.

The drive is through a four-speed gear box which is attached to the shaper column at the rear. This gear box provides the four speed changes through the manipulation of one long lever, and provides the connection to the back gears located inside of the column. Eight cutting speeds for the ram are obtainable, and speed changes are accomplished while the machine is running. All gears are cut from chrome-manganese forgings, heat-treated, oil-tempered and hardened, and are mounted on multiple-splined shafts. The shafts are also of alloy steel, heat treated, multiple-splined and mounted in tapered roller bearings. The bearings and gears are flooded with filtered oil by the automatic lubricating system, and in addition, the gears run in a bath of oil.

Power is delivered to the gear box through a multiple disk-clutch in the speed box. This clutch is made up of hardened steel disks running in oil. A brake, also located in the initial drive unit, operates in conjunction with the multiple-disk clutch, providing an instantaneous stop to the ram. A unique feature of this brake is the use of a toggle lock, which holds the brake in engagement, thus guarding against ram movement when the clutch is disengaged.

The back gears, located inside the column, are the single helix type. The back gear shaft is mounted in tapered roller bearings, which take the thrust of the helical gear drive. These gears, also, are cut from chrome-manganese forgings.

The bull wheel is the only gear of the driving train that is not hardened. Because of its size this gear is made from a semi-steel casting. The pinion that drives it is hardened, and both gears are of the helical type. The bull wheel is of two-piece construction, the gear portion being fitted and bolted to the large hub or disk. This is done to facilitate repairs, only the gear portion having to be renewed in case of wear or accident. A gear guard covering the teeth is provided for the bull wheel, preventing chips and foreign matter getting into the gear teeth. The large hub provided on the bull wheel unit is intended to give a substantial mounting in the column bearing. This hub runs in a renewable bushing, and is flooded with filtered oil by the automatic lubricating system. The bull wheel unit is mounted unusually high up and close to the column wall, to bring the power application close to the ram and give maximum resistance to the bull wheel unit.

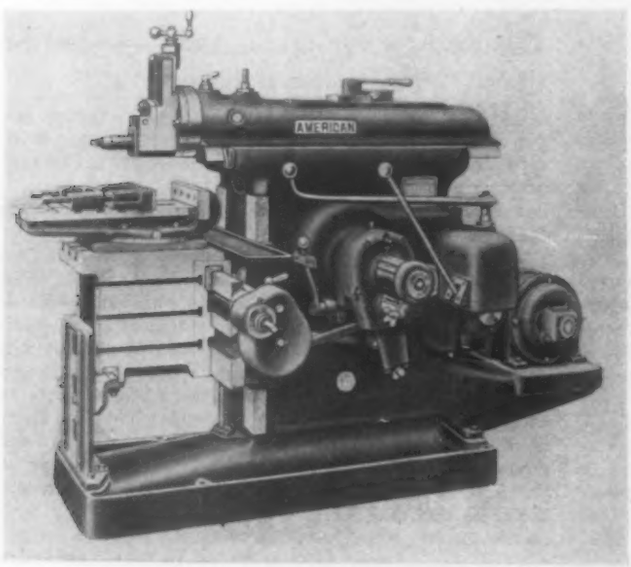
The rocker arm is of massive construction, with heavy ribs of box form and is mounted on a fulcrum or pivot shaft at the bottom, which is journaled in both of the column walls. This mounting is stressed as supporting the weight of the rocker arm and its parts, relieving the ram of this additional burden. The connection between the rocker arm and the ram is through a double link.

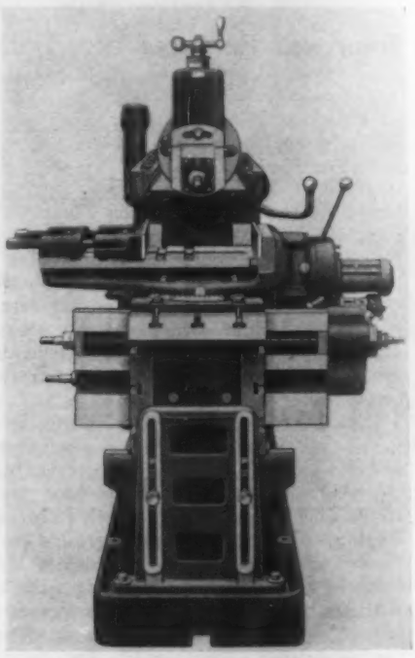
The size of the sliding block has been increased in order to provide greater area of contact between the rocker arm and the block. The sliding block is of alloy steel, hardened and ground and fitted to the chilled ways of the rocker arm. These parts are flooded with oil by forced lubrication. The wrist pin that fits into and revolves in the sliding block is of alloy steel, heat treated, and is provided with a renewable hard bronze liner to contact with the sliding block. Flooded lubrication to these members is a feature stressed.

The ram is of V-type, with wide guides providing a large area of bearing contact with the column ways. The ram and column bearings are flooded with oil. Wear can be taken up by a combined clamp and gib.

The column is wide and deep, and has heavy circular and radial ribs augmented by wide lateral ribs to tie the walls together rigidly. The ram ways are reinforced, and the bearing surfaces are chilled. The guide ways are fitted with felt inserts connecting with the automatic lubricating system. A felt wiper at each end of the guide ways is intended to prevent escape of oil from the guide ways, and wipe grit and dirt from the ram bearings. The base is of heavy extension type, and the portion beneath the column forms the reservoir for the lubricating system. The saddle is heavy and is fitted to the narrow guide-way on the rail, with a dovetail fit at the bottom and a square box fit at the top.

The automatic forced lubrication system provided





Several Improved Features of Design Have Been Incorporated, and All Control Levers Brought Within Convenient Reach

for the machine is made up of a large oil reservoir in the base, with a settling compartment where the heavy sediment is deposited. From a second compartment into which the settled oil flows a plunger pump forces the oil to the filtering and distributing tank at the top of the column. In this tank the oil is forced by pump pressure through felt pads, which [illegible] dirt or foreign matter. The clean oil is then distributed under pressure to all the bearings, gears and moving parts in the machine.

Centralized control is a feature particularly stressed, all control levers being located so that they may be conveniently operated from the operator's working position.

A unique feature is the new method of changing the stroke length. Instead of the three operations of unclamping, setting the stroke and then reclamping formerly required to change the stroke, only one operation is required. An automatic clutch lock is released by the application of the stroke crank to the end of the stroke adjusting shaft. The adjustment is made and the mechanism again locked automatically by the removal of the stroke crank. This mechanism is arranged so that the stroke adjusting crank will not stay on the shaft unless held there. Another feature is the use of a straight scale along which a pointer travels indicating the stroke length as the adjustment is being made.

The cross feed is new. It is automatic, simple, and provides nine graduated feeds through a convenient star knob located on the bull wheel unit which moves a pointer along a graduated scale. The scale is located so that it is in view of the operator. The feed takes place during the entire return stroke of the ram, and without shock. An automatic safety mechanism is provided, as in the company's previous machines, to protect the feed works against damage.

The head is of massive construction. It is operative at any angle and is equipped with a locking mechanism. The tool slide is of the solid type, with the male dovetail for the connection between the slide and swivel cast integral with the tool slide, instead of with the swivel, which is stressed as providing more rigid construction. The tool slide is fitted with a full length taper gib with single screw adjustment for taking up the wear, and has an unusually large diameter feed screw fitted with a micrometer collar graduated in 0.001 in.

Machines Arranged to Facilitate Keyseating

On all sizes of the machine below the 24 in. heavy-pattern the rocker arm is made with a double section at the top, which in connection with the large opening in the column permits fairly large diameter shafts to be passed under the ram for keyseating. On the larger sizes, 24 in. and up, the column and rocker arm are closed to give greater rigidity. To permit keywaying on the large sizes the column is designed so the shaft can be passed along the front of the column, the operator being able to watch his work, and control the machine from his working position.

The table support is of improved design, the supporting housing for the adjustable support block being bolted to the shaper base. The support block is always in contact with the table, giving it a bearing even when fed to either extreme. A gib is furnished in the support block for maintaining the proper contact with the table. Felt wipers are supplied to lubricate and clean the contacting surfaces of the table and support block. Advantages claimed for this type of table support are that it provides support for the table directly under the cutting tool at all times, regardless of the position of the table; and it does not impart inaccuracies in the base alinement to the table, and in turn to the work.

The belt-connected motor drive is the type adopted, a constant-speed motor of approximately 1800 r.p.m. being recommended. The motor is mounted on a bracket or base bolted to the shaper column and is connected to the driving pulley by an endless belt with a ball bearing idler, counter-weighted to maintain constant belt tension. The whole motor drive unit, except the motor itself, is completely inclosed in a dirt-proof housing.

Large Order for Gas Producers

The Bethlehem Steel Co. has placed an order with the Wellman-Seaver-Morgan Co., Cleveland, for 29 mechanical gas producers, which is one of the largest producer orders ever placed. Sixteen producers are for the Lackawanna plant, seven for the Sparrows Point plant and six for the Steelton plant. The Wellman-Seaver-Morgan Co. has also taken an order from Thornhill & Anderson for three gas producers for export to Japan, together with an order for a gas producer building, dust catchers and a flue system. Other recent orders taken by the Cleveland company include a crane-type slab-charging machine for the Lukens Steel Co., two shear tables for the Homestead Works of the Carnegie Steel Co., two 7½-ton special magnet-handling gantry cranes, one for the Toledo Furnace Co., Toledo, Ohio, and one for the By-Products Coke Corporation, Chicago, and an electric mine hoist for the American Smelting & Refining Co.

COMING MEETINGS

September

New Haven Machine Tool Exhibition. Sept. 7 to 10. Sixth annual meeting, Mason Laboratory, Yale University, New Haven, Conn. H. R. Westcott, 400 Temple Street, New Haven, chairman exhibition committee.

Lake Superior Mining Institute. Sept. 8 and 9. Twenty-fifth annual meeting, Ironwood, Mich. A. J. Yungbluth, Ishpeming, Mich., secretary.

Concrete Reinforcing Steel Institute. Sept. 13 to 15. Semi-annual meeting, French Lick Springs Hotel, French Lick, Ind. M. A. Beeman, 2112 Tribune Tower, Chicago, secretary.

Ohio State Foundrymen's Association. Sept. 16 and 17. Annual meeting, Hotel Sinton, Cincinnati.

American Society for Steel Treating. Sept. 20 to 24, inclusive. Eighth annual convention and national steel and machine tool exposition, Drake Hotel, Chicago. W. H. Eisenman, 4600 Prospect Avenue, Cleveland, secretary.

Society of Automotive Engineers. Sept. 21 to 23. Annual production meeting, Hotel Sherman, Chicago. John Warner, 29 West Thirty-ninth Street, New York, manager meeting arrangements.

American Foundrymen's Association. Sept. 27 to Oct. 1. Thirtieth annual convention and second international foundrymen's congress, Book-Cadillac Hotel, Detroit. C. E. Hoyt, 140 South Dearborn Street, Chicago, secretary-treasurer.

October

American Institute of Mining and Metallurgical Engineers. Oct. 5 to 9. One hundred thirty-fourth general meeting, Hotel Schenley, Pittsburgh. H. Foster Bain, 29 West Thirty-ninth Street, New York, secretary.

American Electrochemical Society. Oct. 7, 8 and 9. Fall meeting, Hotel Washington, Washington. Colin G. Fink, Columbia University, New York, secretary.

American Management Association. Oct. 11 and 12. Fall meeting, Hotel Statler, Cleveland. W. J. Donald, 20 Vesey Street, New York, managing director.

American Gear Manufacturers' Association. Oct. 14, 15 and 16. Semi-annual meeting, Briarcliff Lodge, Briarcliff Manor, N. Y. T. W. Owen, 2443 Prospect Avenue, Cleveland, secretary.

American Iron and Steel Institute. Oct. 22. Fall meeting, Hotel Commodore, New York. E. A. S. Clarke, 40 Rector Street, New York, secretary.

National Safety Council. Oct. 25 to 30. Fifteenth annual safety congress, Hotel Statler, Detroit. W. H. Cameron, 168 North Michigan Avenue, Chicago, managing director.

Syndicate Parleys Interest Europe

Belgian Government Aids—British Take Riveted Pipe Order in South America—Americans Meet European Pipe Prices in Cuba

(*By Cable*)

LONDON, ENGLAND, Aug. 30.

CLEVELAND pig iron is quiet and with supplies very small consumers are using considerable quantities of Continental material. The coal outlook is slightly improved, but there is little prospect of an early resumption of blast furnace operation.

Stocks of British steel are practically exhausted. Some merchants have approached the mills for post strike deliveries, but works are not inclined to quote in view of the uncertainty of costs. A few makers are booking future business at about the present minimum price levels, but current output commands premiums up to 30s. per ton. Braithwaite & Co., Ltd., has secured a contract for 21,000 tons of riveted pipe for South America.

Tin plate is dull, buyers awaiting events in the hope of a coal settlement. Meanwhile, the South Wales output is only about 30 per cent of capacity. Stock tin plate is easier at 21s. to 23s. 6d. per base box. Tin plate rolled from foreign bars is quoted at 21s. to 21s. 3d. per base box, with October delivery guaranteed. Tin plate for post strike delivery nominally commands 20s. to 20s. 3d., all f.o.b. works port. Galvanized sheets are quiet, but prices are steady. Black sheets are slightly firmer on the recent Japanese demand, which has now tapered off. Makers have booked a fair business but South American buying is restricted by the uncertain deliveries offered.

Continental material is slightly easier, with demand slackening as a result of the advanced prices and the doubtful outlook for the proposed European raw steel cartel. The Belgian Government is reported intervening to unify the attitude of Belgian mills and facilitate the formation of a cartel.

Fair Activity in Finished Products Made from Continental Semi-Finished Steel

LONDON, ENGLAND, Aug. 19.—The iron and steel industry here continues in what can hardly be called a satisfactory state, which is inevitable on account of the fuel difficulty. It is, therefore, satisfactory to see that the prospects seem a little brighter for a settlement of the coal strike.

For the present business in pig iron is restricted, both because production is curtailed to the minimum, and also owing to the fact that consumers would have difficulty in using the material, even did they desire to pay current prices for it. One important feature in the position, however, is that makers' stocks of iron and steel materials generally have been almost completely exhausted. At the time the strike began these represented a not inconsiderable tonnage, and the labor difficulty has been the means of permitting holders to realize remunerative prices, while the stocks thus held have proved useful to buyers at a time when production was curtailed or stopped.

Now that importations of foreign coal have permitted a fair amount of activity among producers of finished materials, a strong demand has developed for semi-finished Continental material, with the result that not only have prices advanced, but material is not easily procured, owing to the well-booked condition of works.

Continental Negotiations

A feature lately has been the meeting in Paris with a view to the development of an international agreement. It is understood that an agreement was reached on certain of the broad principles, but final ratification was dependent upon the assent of two of the countries. Subsequently it has been rumored that the negotiations have broken down. This, on the other hand, is denied, and it now appears as if the suspension of negotiations was due in large measure to the fact that, the Belgian and French industries being less highly organized than the German, the delegates were unable to take a decision binding their members. At all events, evidently the meeting is to be resumed about the middle of September.

As is to be expected, the shipbuilding industry, which was in bad condition, has been further affected

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British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.86 per £ as follows:

Durham coke, f.o.b..	£2	12½s.				$12.76		
Bilbao Rubio ore†	1	1	to	£1	1½s.	5.10	to	$5.16
Cleveland No. 1 fdy.	4	12½	and	4	13*	22.48	and	22.60*
Cleveland No. 3 fdy.	4	10	and	4	10½*	21.87	and	22.00*
Cleveland No. 4 fdy.	4	9	and	4	9½*	21.63	and	21.75*
Cleveland No. 4 forge	4	8½	and	4	9*	21.50	and	21.63*
Cleveland basic (nom.)	3	15	and	3	15½*	18.23	and	18.35*
East Coast mixed..	4	2½	and	4	3*	20.04	and	20.17*
East Coast hematite	3	16	to	3	16½	18.46	to	18.58
Ferromanganese	14	0				68.04		
*Ferromanganese	14	0				68.04		
Rails, 60 lb. and up	6	15	to	7	5	22.80	to	35.23
Billets	6	10	to	8	0	21.59	to	38.88
Sheet and tin plate bars, Welsh	6	5				30.37		
Tin plates, base box	1	0	to	1	3½	4.86	to	5.71
Black sheets, Japanese specifications	13	15	to	13	17½	66.83	to	67.43
						C. per Lb.		
Ship plates	7	5	to	7	15	1.57	to	1.68
Boiler plates	9	5	to	11	0	2.00	to	2.39
Tees	7	10	to	8	0	1.62	to	1.73
Channels	6	15	to	7	5	1.46	to	1.57
Beams	6	10	to	7	0	1.41	to	1.52
Round bars, ¾ to 3 in.	7	12½	to	8	2½	1.65	to	1.76
Steel hoops	10	10	and	11	0*	2.28	and	2.39*
Black sheets, 24 gage	11	5				2.44		
Galv. sheets, 24 gage	16	10	to	16	15	3.58	to	3.60
Cold rolled steel strip, 20 gage	15	0				3.91		

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports

(Per Metric Ton)

Foundry pig iron: (a)								
Belgium	£3	11s.	to	£3	12s.	$17.25	to	$17.50
France	3	11	to	3	12	17.25	to	17.50
Luxemburg	3	11	to	3	12	17.25	to	17.50
Basic pig iron: (a)								
Belgium	3	4	to	3	5	15.55	to	15.80
France	3	4	to	3	5	15.55	to	15.80
Luxemburg	3	4	to	3	5	15.55	to	15.80
Coke	0	18				4.37		
Billets:								
Belgium	4	12½	to	4	15	22.48	to	23.08
France	4	12½	to	4	15	22.48	to	23.08
Merchant bars:						C. per Lb.		
Belgium	5	0	to	5	2½	1.10	to	1.15
Luxemburg	5	0	to	5	2½	1.10	to	1.15
France	5	0	to	5	2½	1.10	to	1.15
Joists (beams):								
Belgium	4	18½	to	5	0	1.08	to	1.10
Luxemburg	4	18½	to	5	0	1.08	to	1.10
France	4	18½	to	5	0	1.08	to	1.10
Angles:								
Belgium	5	0				1.10		
¼-in. plates:								
Belgium	6	0	to	6	2½	1.32	to	1.35
Germany	6	0	to	6	2½	1.32	to	1.35
⅜-in. ship plates:								
Belgium	5	10	to	5	12½	1.21	to	1.24
Luxemburg	5	10	to	5	12½	1.21	to	1.24
Sheets, heavy:								
Belgium	6	3	to	6	4	1.33	to	1.34
Germany	6	3	to	6	4	1.33	to	1.34

(a) Nominal.

by the coal difficulty. It is therefore gratifying to see that some of the shipyards at West Hartlepool will resume work almost immediately. Evidently the owners for whom the tonnages are booked have agreed to waive the clause that only British material should be used, and therefore steel is being imported.

FRENCH MARKET QUIET

Domestic Consumers Well Stocked with Lower Priced Steel—Pig Iron Demand Still Heavy

PARIS, FRANCE, Aug. 20.—Continued fluctuation of the exchange and the attendant instability of the market makes the transaction of business extremely difficult. With the prospect of continued movement of the exchange, neither buyers nor sellers are inclined to make long contracts for domestic delivery. Export trade, however, is improving, partly as a result of the rise in value of the franc and partly because of the bright prospects for the formation of an international steel syndicate.

General agreement on the formation of a steel syndicate including France, Belgium, Germany, Luxemburg and the Saar, is expected in the next few weeks. In addition to the establishment of quotas, satisfactory to all concerned, it is believed that there will be an agreement on the shipment of a certain tonnage of pig iron from the other members to Germany.

Pig Iron.—The allotments of both phosphoric foundry and hematite iron placed at the disposal of foundries for August are reported as insufficient. At the meeting of producers and consumers next week, to determine the allotment and price for September, an increase in price as well as an increase in the quota of tonnage would not be unexpected. Had the franc continued stable a reduction in price might have been made, but the recent downward movement of exchange makes it probable that some increase will be demanded by the furnaces. There have been a few export tonnages of pig iron sold to Belgian consumers recently and although British users are inactive at present, their stocks of iron are almost totally exhausted so that immediately on conclusion of the coal strike, an active British trade is expected until their own furnaces are again producing sufficient tonnage.

Finished Steel.—Most mills are well booked with orders, both the warehouses and fabricators having bought heavily in recent months. Consequently, with satisfactory stocks on hand, consumers show only moderate interest in further purchasing. Recently beams have been quoted at 900 to 950 fr. per ton in the domestic market and £4 14s. to £4 15s. per metric ton, f.o.b. Antwerp. Export bars bring about £4 18s. per metric ton.

German Railroad Freights on Pipe for Export Are Reduced

HAMBURG, GERMANY, Aug. 12.—The German railroads have made a considerable reduction in the freight rates on gas and water pipe shipped for export. The reduction is from 15 per cent to 25 per cent and is obtainable by plants shipping not less than 3000 tons in three months. Makers failing to ship this minimum total must pay the difference of 15 to 25 per cent to the railroads.

German drill makers and manufacturers of tool steel for mining, report large increases in business since the British coal strike, numerous orders coming from the mines in South Africa and the Straits Settlements, which normally are placed with British companies.

International Steel Syndicate May Fix Quotas Each Quarter

HAMBURG, GERMANY, Aug. 12.—The principal obstacle to the conclusion of an agreement to form an international steel syndicate, is generally understood to have been disagreement, primarily between the French and German mills, on the method of determining the allotments of the participants.

The German mills proposed that the 1925 production of each country should be the basis with the quotas at 43.22 per cent for Germany, 11.60 per cent for Belgium, 39.45 per cent for France and Luxemburg and 5.73 per cent for the Saar. The 1925 basis was opposed by the French mills, who proposed using the production rates of the first quarter of 1926, the result of which was greatly in their favor as the French production was then at practically 100 per cent.

A new proposal is now understood to have been made, which will probably be discussed at the meeting scheduled for Sept. 15. This permits the establishment of quotas for each quarter, based on the actual output of the participating countries in the previous quarter. In quarters familiar with the previous negotiations, it seems to be rather generally believed that this latest proposal gives promise of success.

EXPORT BUYING LIGHT

Japanese Buy More Tin Plate—American Pipe Competes Successfully in Cuba—Importers Here Are Active

NEW YORK, Aug. 31.—The volume of inquiry for export continues small, foreign consumers evidently being interested only in small lots of material. Demand for tin plate is active, but the extended deliveries being quoted by most makers is a deterrent, buyers as a rule seeking shipment before November. The recent tin plate inquiry of the Kioto Oil Co. in Japan, for about 10,000 base boxes of oil can sizes, has been closed with Iwai & Co., New York, for shipment by an American mill. There have been several small lot inquiries for tin plate recently from Chinese markets. The sheet market is quiet, the demand in Japan evidently having been temporarily satisfied.

While the Far Eastern markets are quiet at present, Japanese purchasing of certain products is expected to develop before long. Among the expected inquiries is the usual requirement of rails by the Imperial Government Railways, estimated on the next purchase as probably close to 10,000 tons and the annual tin plate requirements of the Japanese Army, usually about 7000 base boxes of primes. A current inquiry from Japan calls for 35,000 ft. of galvanized gas tubing, said to be for the Tokio Gas Co.

Further increases in the steel schedule of the Japanese tariff are reported under consideration, in a cable to the Department of Commerce from the Tokio commercial attaché. The present duties were imposed by the tariff law which became effective March 29 of this year.

In Cuba, American pipe sellers are reported competing successfully with Continental producers of tubular goods. To meet the competition in that market of foreign pipe made to United States standards, American mills have slightly lowered prices and have the additional advantage of the preferential tariff, under which they pay only 75 per cent of the established schedule.

Importers of Continental steel for consumers in the United States report a large number of inquiries mostly for small tonnages. In addition to the usual demand for plain and corrugated bars and structural material, the inquiry of a steel barrel manufacturer in Brooklyn, N. Y., for about 1000 tons of 16 to 18 gage sheets is reported still open. One importer in New York recently closed orders for 500 tons of plain steel bars and 500 tons of reinforcing bars for delivery into the New England district. Prices quoted on French and Belgian steel products are slightly lower than the usual German quotations, but are reported strong with a tendency to advance. German mills, according to importers are continuing to quote about 1.75c. per lb., c.i.f. duty paid on structural shapes, 1.80c. per lb., c.i.f. on intermediate grade Thomas steel bars and 1.90c. to 1.95c. per lb., c.i.f. on open-hearth steel bars.

Exports of Rails from Various Countries

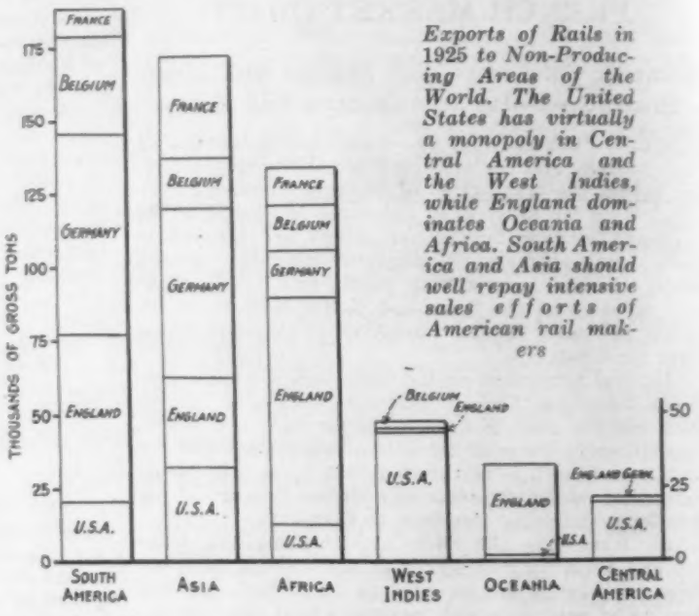
Germany, France, England and Belgium, in That Order, All Lead United States—American Share of Total Only One-Seventh

ANALYSIS of the exports of steel rails to various countries has been made by the Iron and Steel Division of the Department of Commerce, Washington. Detailed record of shipments from the United States, England, Germany, France and Belgium is reproduced here.

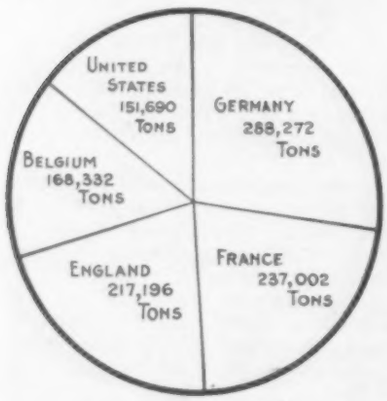
The table shows the summary of exports by continents or other large divisions.

Undistributed tonnages, unfortunately, are large in the case of both France (20 per cent of her total) and Germany (16 per cent). Two-thirds of France's located shipments went to other European countries, as did three-eighths of Germany's and nearly one-half of Belgium's.

Germany dominated the markets of South America and Asia, while England was supreme in Africa and in Oceania. In both Central America and the West Indies, as well as in contiguous parts of North America, the United States led all competitors.



Exports of Rails in 1925 to Non-Producing Areas of the World. The United States has virtually a monopoly in Central America and the West Indies, while England dominates Oceania and Africa. South America and Asia should well repay intensive sales efforts of American rail makers



Shares of Five Exporting Countries in 1925 Rail Exports. The United States accounted for one-seventh of the total exports, while producing perhaps one-half the combined rail output

Distribution of 1925 Rail Exports by Continent or Large Divisions

Destination	United States	United Kingdom	Germany	France	Belgium	Total	Per Cent
Europe	1,552	4,627	88,581	128,637	74,045	297,442	28.0
North America	20,226	15,192	11,666	4,308	16,369	67,761	6.4
Central America	19,681	1,050	289	.....	.....	21,020	2.0
West Indies	43,618	1,376	.....	.....	2,417	47,411	4.5
South America	20,213	56,864	68,934	8,561	32,953	187,525	17.6
Asia	32,488	30,324	57,564	34,843	16,302	171,521	16.1
Oceania	1,611	30,663	.....	.....	.....	32,274	3.0
Africa	12,301	77,089	15,870	13,065	15,172	133,497	12.6
Not stated	.....	11	45,368	47,588	11,074	104,041	9.8
Total	151,690	217,196	288,272	237,002	168,332	1,062,492	100.0
Distribution, per cent	14.3	20.5	27.1	22.3	15.8	100.0	
Total to non-producing areas*	129,912	197,366	142,657	56,469	66,844	536,779	

*South and Central America, West Indies, Asia, Africa and Oceania.

Italy Aims to Reduce Steel Imports

WASHINGTON, Aug. 29.—Efforts are being made by Italian iron and steel manufacturers, in cooperation with the Government, to replace a considerable part of imported products with domestic material, according to a report received by the Department of Commerce from H. C. MacLean, commercial attaché, Rome. Mr. MacLean refers to an important meeting of the Ministers of Finance and National Economy with representatives of the steel industry, at which the Government gave assurance that at least temporarily the limits imposed on the amount of the iron ore taken from the Elba mines would be raised. The report states that producers have agreed to maintain present prices, despite the increase in the cost of coal as a result of the British strike. Increased operations are understood to have resulted from the plan.

It is estimated that pig iron is being produced at a rate of 40,000 tons monthly and steel at the rate of 140,000 tons, or 1,680,000 tons per year, while the consumption is in excess of 2,000,000 tons. Imports during the first three months of 1926 amounted to 154,000 tons of scrap, 56,000 tons of pig iron and 98,000 tons of iron and steel products. In 1925 imports of iron and steel into Italy were valued at approximately 280,000,000 lire.

Schedule of the next installments of the ***Business Analysis and Forecast****, by Dr. Lewis H. Haney, Director New York University Bureau of Business Research, follows:* ***Sept. 16****—Activity in Steel Consuming Industries;* ***Sept. 23****—Position of Iron and Steel Producers;* ***Sept. 30****—General Business Outlook.*

In This Issue

Now makes molds in one-sixth time previously required.—Furnace builder makes great savings by using new molding machine which dispenses with flasks. Only one flask is used and that is permanently attached to the machine. Pouring jackets support the molds during pouring.—Page 604.

Plate it with chromium instead of hardening it.—Because of its hardness and resistance to wear, chromium-plating can frequently be substituted acceptably for hardening.—Page 600.

American iron and steel mills' foreign sales are increasing.—July shipments totaled 194,717 tons, highest in 18 months. Imports dropped, the July total of 82,411 tons being the lowest since January.—Page 659.

Doubts that British coal mine owners themselves sense seriousness of their situation.—A "coal war" menaces Europe, says John Calder. The strike is encouraging other countries with great coal resources to enter the international market, which will make conditions still worse. Believes that only a world coal pact will prevent a crisis. —Page 603.

Class I railroad properties valued at over 26 billion dollars by commerce commission.—Capital stock and bonds total only 18.5 billions, about 72 per cent of the aggregate assets.—Page 606.

Why was Europe's 1925 steel output below 1913 while American production gained 50 per cent?—Foreign steel works can no longer be called antiquated; nor is inefficiency the reason. Widespread poverty or lack of buying power is not a sufficient explanation. Uncertain business conditions strike an American observer as being the true cause.—Page 607.

A good rule to follow in controlling the hearth temperature in blast furnace practice. —Never change the burden when the hearth is cold.—Page 613.

How can you tell when a foundry iron furnace is going "off"?—As foundry irons require high silicon, the furnace is becoming colder when the silicon in the iron drops and the silica in the slag increases.—Page 613.

No. 24 gage adopted as new base for black and galvanized sheets.—No. 28 gage base abandoned on Sept. 1. Gage extras have also been changed.—Page 633.

Do upkeep requirements account for the growth in the untraceable demand for steel? —Visible sources of demand do not seem to account for all the steel that is actually absorbed. The great increase in replacement requirements of the railroads and the automotive vehicle users may account for some of the untraced steel.—Page 628.

American machinery business abroad is swelling. — More than 34 million dollars' worth of machinery was exported in July, a gain of 3.6 millions over June. American purchases of foreign-made machinery declined 1 per cent.—Page 661.

Fewer gray iron foundries but greater capacity.—The country now has 4044, a loss of 160 in two years, and 530 fewer than in 1914. The production of foundry iron has increased 10 per cent in the past 10 years, but in the same period the output of all pig iron has increased nearly 29 per cent, indicating that gray iron castings are being outstripped by steel.—Page 629.

Is the survival of the Dawes plan threatened?—The plan may be working too well. From Great Britain comes the report of the opinion that it is producing German competition in manufacturing adverse to British interests.—Page 629.

Secrecy and industrial inefficiency usually go hand in hand. — The plant with closed doors is pretty sure to be doing things its management should be ashamed of, and often is. The industrial success of America is due in no small degree to free exchange of information. England is badly handicapped by the cautious nursing of "trade secrets." —Page 629.

How is business?—National Metal Trades Association reports July employment almost 2 per cent above June.—Page 613. Steel furniture sales for July 10 per cent under June.—Page 611. July foundry equipment sales 7 per cent under June.—Page 618. July output of malleable castings was 9 per cent less than in June.—Page 632.

August pig iron output slightly below July. —Estimated daily production for August was 103,103 tons, a falling off of 875 tons, or less than 1 per cent. Furnaces in blast Aug. 31 totaled 214, a loss of 2 from Aug. 1.—Page 631.

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Steel Treaters' Number Next Week

A FEATURE of THE IRON AGE of Sept. 9, the next issue, will be a section of 16 pages devoted to the National Steel and Machine Tool Exhibition to be conducted by the American Society for Steel Treating at its annual convention in Chicago Sept. 20-24. In addition to details of the products which more than 300 companies will exhibit and the names of executives and sales representatives of these companies who will attend, will be nearly 200 photographs of the men who are marketing the products which steel treaters use in their work. It will be an interesting gallery of the presidents, sales managers and sales representatives of prominent companies in the steel and related metallurgical industries. To those who will attend the Steel Treaters' Convention these portraits should prove a valuable help in locating the men one wants to see and talk with.

For News Summary See Reverse Side

Where Steel Exports Went in Seven Months

Canada Took 483,880 Tons—Japan Retains Second Position with 156,345 Tons, Followed by Mexico with 60,065 Tons and Cuba with 52,087 Tons

Exports from United States, by Countries of Destination

(In Gross Tons)

	Steel Plates				Galvanized Sheets				Black Steel Sheets			
	July		Seven Months Ended July		July		Seven Months Ended July		July		Seven Months Ended July	
	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925
Total	*10,844*	*6,000*	*79,095*	*59,820*	*14,883*	*10,000*	*103,221*	*98,711*	*17,277*	*6,903*	*108,454*	*44,413*
Canada	9,860	4,923	69,609	45,352	2,412	1,880	30,498	15,990	6,896	3,567	38,165	24,903
Japan	17	....	432	879	252	56	4,010	2,065	8,671	1,465	59,420	13,194
Cuba	390	70	1,050	368	546	1,209	5,325	5,815	70	84	292	561
Philippine Islands	....	36	....	149	3,429	1,247	14,513	11,389	....	8	....	105
Mexico	60	203	705	849	684	1,058	6,358	4,773	....	....	....	....
Argentina	....	....	....	....	1,338	558	6,376	22,719	74	43	655	347
Chile	....	....	....	....	249	3	2,120	1,464	....	....	....	....
Colombia	....	....	....	....	492	415	4,299	3,251	....	....	....	....

	Steel Rails				Barbed Wire				Plain and Galvanized Wire			
	July		Seven Months Ended July		July		Seven Months Ended July		July		Seven Months Ended July	
	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925
Total	*20,241*	*20,152*	*91,432*	*95,754*	*4,730*	*6,108*	*35,547*	*49,291*	*2,420*	*2,887*	*21,862*	*23,041*
Canada	2,770	3,433	15,216	11,478	272	142	3,810	1,283	1,038	1,007	8,325	9,021
Japan	5,846	1,269	16,659	3,955	....	....	....	....	114	33	877	433
Cuba	1,941	1,151	8,767	24,445	279	544	1,666	3,019	58	155	819	1,545
Philippine Islands	1,663	733	4,224	2,215	546	369	3,858	773	....	....	....	....
Mexico	2,711	198	5,476	3,891	391	614	3,921	3,923	490	515	3,243	2,270
Argentina	....	....	....	....	160	259	1,693	5,600	38	300	2,051	487
Chile	496	635	8,483	4,350	....	....	....	....	....	25	....	103
Colombia	1,470	479	4,915	891	462	379	3,213	2,864	....	....	....	....
Brazil	1,685	150	2,903	2,528	562	1,721	5,228	10,617	159	292	885	1,468
Honduras	....	189	....	1,182	....	....	....	....	....	....	....	....
Australia	....	....	....	....	62	33	681	713	....	....	....	....
British S. Africa	....	....	....	....	293	380	2,017	3,499	....	....	....	....

	Tin Plate				Plain Heavy Structural Steel				Steel Bars			
	July		Seven Months Ended July		July		Seven Months Ended July		July		Seven Months Ended July	
	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925
Total	*20,197*	*10,918*	*118,539*	*88,697*	*12,478*	*6,628*	*88,297*	*49,895*	*11,962*	*7,221*	*80,024*	*62,997*
Canada	3,963	2,790	24,115	20,421	10,548	4,176	67,947	30,054	7,063	4,142	48,880	34,540
Japan	3,476	2,141	27,412	19,162	69	52	3,338	950	282	164	1,533	802
Cuba	153	247	1,348	3,000	643	688	4,770	3,976	327	605	2,210	3,130
Mexico	615	596	4,068	3,528	....	....	....	....	....	....	....	....
Argentina	1,848	479	5,719	5,521	....	....	....	....	....	....	....	....
Chile	523	934	3,426	3,171	411	114	2,114	1,293	....	....	....	....
China	2,408	1,391	11,443	7,053	....	....	....	....	....	....	....	....
Italy	376	589	9,726	4,828	....	....	....	....	....	....	....	....

Destination of Iron and Steel Products Exported From the United States

(In Gross Tons)

Country of Destination	July, 1926	Jan. Through July, 1926	Jan. Through July, 1925
North and Central America and the West Indies	*104,257*	*645,546*	*525,795*
Canada and Newfoundland	79,651	483,880	330,843
Cuba	7,849	52,087	84,661
Mexico	10,828	60,065	68,521
Guatemala	635	7,969	4,441
Salvador	849	11,480	9,064
Panama	534	4,887	6,993
British West Indies	905	5,409	4,299
Other West Indies	1,241	9,734	8,357
Other Central America	1,655	10,035	8,616
South America	*29,265*	*198,210*	*187,599*
Argentina	4,587	34,955	64,883
Venezuela	7,387	38,475	17,310
Colombia	4,534	26,980	33,805
Chile	4,427	36,802	29,197
Peru	1,685	19,835	8,878
Brazil	5,991	24,450	27,206
Other South America	654	6,713	6,320
Europe	*11,869*	*79,917*	*80,091*
United Kingdom	7,409	52,051	27,287
Italy	424	22,187	27,878

Country of Destination	July, 1926	Jan. Through July, 1926	Jan. Through July, 1925
France	144	7,055	3,469
Russia	....	3,807	491
Rumania	153	2,057	553
Turkey	1,540	2,232	978
Other Europe	2,199	11,528	19,435
Far East	*47,958*	*290,985*	*169,211*
Japan and Chosen	26,005	156,345	65,226
Philippine Islands	8,598	39,055	28,913
India	1,382	19,938	9,335
China	4,304	21,567	30,690
Dutch East Indies	3,355	19,865	11,851
Australia	1,409	13,827	13,225
Kwangtung	402	7,595	1,496
British Malaya	220	5,133	3,264
Other Asia and far eastern markets	2,176	6,756	5,212
Africa	*1,868*	*9,512*	*19,460*
British South Africa	641	4,798	17,275
Egypt	246	3,337	1,251
Portuguese East Africa	414	1,261	895
Other Africa	67	348	339

MUCH heavier shipments of steel plates to Canada feature the analysis above. In July the tonnage was double that of a year ago; in seventh months the advance was 53 per cent. Galvanized sheets to both Canada and Japan doubled in the seven months, compared with 1925. Japan took more than 4½ times as much tonnage of black sheets this year, whether the single month or the seven months be considered. Rails to Japan were more than quadrupled and barbed wire was trebled; tin plate went up over 40 per cent. Structural material sent to Canada was more than doubled and steel bars increased 40 per cent. China took a large quantity of tin plate, ranking third, after Canada and Japan.

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More Steel for Upkeep?

FOR the purpose of gaging the probable demand for steel in future years it would be helpful to have a definite conception of the relative proportions of steel now going respectively into expansion and into upkeep. This matter has always been of substantial interest but it has received little attention except in unusual economic conditions. During the lulls in steel demand before the war it was discussed, the object being to determine or guess how the deficiency in demand was distributed —how much was due to there being no expansion and how much to normal upkeep requirements not being met. Just after the war, when there was much desire to get commodity prices and wages on a promising basis, there was much talk that the great bulk of iron and steel requirements was for building, hence that buying would be deferred unless prices were properly related to what could be expected in future.

Some light is gained by considering the course to date of various lines of steel absorption, how they have trended from a condition of expansion to a condition of upkeep. The case of the railroads is outstanding, since for a long time they were the largest single outlet for steel. Nowadays the railroads require between 1,500,000 and 2,000,000 tons of rails a year for replacements. They have been retiring freight cars at various rates during the past few years, but 10,000 cars a month is probably low for an assumption as to the present situation. They take very little additional steel in these two lines for expansion. The time was, however, that the railroads were buying similar tonnages of rails and similar numbers of freight cars, entirely for expansion.

Then we have the more recent case of the automobile. The early demand was almost wholly for increasing the number of automobiles in service. That was expansion, and it must not be overlooked that the average amount of steel per passenger car was then much larger than it is now, for the average car is much lighter. One estimate is that 1,503,127 motor vehicles were scrapped in 1925, while the production was 4,154,269. That makes a pro_ortion, in point of numbers, of 36 per cent, but in point of weight there is no doubt that the proportion of steel thus scrapped to new steel used was considerably more than 36 per cent.

The principle is less easily seen in other lines, but it is not wholly invisible. For a long time we were increasing the number of acres of farm land under cultivation. Then we passed into a stage of introducing more machinery on the farm. Both are expansion. It is conceivable, in a general way, that we may get to a point when farms have been fully mechanized, and annual replacements and repairs will represent as large a tonnage as was involved at some previous time in the expansion.

Thus there is the general point that most given lines of consumption of steel tend to pass first through a period chiefly of expansion and then to get into a period chiefly of upkeep, the upkeep tonnage being large.

There has been no little comment of late to the effect that the visible sources of demand on the steel industry do not seem to account for all the steel that is actually absorbed. This means that something has been going on that has not been recognized. Growing upkeep requirements may indicate where some of this untraced steel is going.

The Trend in Foundry Iron Melt

THERE were 5785 foundries in the United States in 1926 as compared with 5945 in 1924, a loss of 160 in the two years. The number of gray iron foundries alone decreased by 91, or from 4135 to 4044, according to "Penton's Foundry List." Gains, however, were shown in other classes of plants as follows: 51 in non-ferrous foundries (from 3265 to 3316), 10 in steel foundries (from 347 to 357), 8 in electric steel foundries (from 174 to 182), and 5 in malleable iron foundries (from 209 to 214). The decline in the number of gray iron plants has been going on for a considerable number of years. In the current year there are 530 fewer gray iron foundries than in 1914.

The number of foundries, of course, is not an

accurate measure of castings production. Available statistics indicate that the loss in the number of establishments has been more than made up by increases in the capacity of foundries which have remained in operation. Foundry pig iron made for sale in this country in the three years 1923 to 1925 averaged 5,242,330 tons, as compared with 4,759,917 tons for the years 1913 to 1915 inclusive. The gain shown is 482,413 tons, or slightly more than 10 per cent. This increase, however, has fallen much short of the gain in total pig iron output. For the three years, 1913 to 1915, the production of pig iron of all grades averaged 28,071,536 tons; for 1923 to 1925 the average was 36,155,834 tons, an increase of 8,084,298 tons, or nearly 29 per cent. On their face the figures point to a smaller expansion in the use of gray iron foundry products than in the use of the combined products of the rolling mill, forging plant and steel foundry.

Labor Benefits from Brains

A LOCOMOTIVE driven by electric motors, which are fed by a generator, which is driven by an internal combustion engine, is being tried by several of the railroad companies. This brief description sounds involved and reads something like the house that Jack built. In fact such a motive plant is intricate and involved. Its *raison d'etre* is simply that the internal combustion engine is a vastly better utilizer of the potential energy of fuel than the steam engine.

The Utah Copper Co. will shortly put one of these locomotives on its lines. That company has a problem of transportation that is more easily analyzed and visualized than most. It employs fifty-seven locomotives, which haul 30,000,000 tons of ore and rock per annum. It is estimated that fifty-seven locomotives of the new type will save $1,200,000 per annum in this transportation.

The Utah Copper Co. realizes a net profit from copper production of about $12,000,000 per annum, functioning as one of the low-cost copper producers of the world. It mines ore containing about 20 pounds of copper per ton, whereof about 16¾ pounds is eventually marketed at about $2.40 delivered in Connecticut. Twenty years ago the idea of exploiting such ore was regarded by engineers as preposterous.

Operating a different type of mine at Butte, Mont., the achievement of the Anaconda Copper Mining Co. has been of the same order. Twenty years ago there was good opinion that Butte was rapidly approaching the end of its productivity. Engineering and management rejuvenated it. One of the important things done there was the more economical application of power. For steam power costing $125 per horsepower each year there was substituted 75,000 hydroelectric horsepower transmitted from the Missouri River, which is saving the mining company about $2,000,000 a year.

These are pertinent illustrations of the nature and magnitude of the savings effected by engineering and management. Labor has nothing to do with them beyond the execution of instructions, which is done often in ignorance, but labor everywhere benefits from the cheaper product that ensues.

What if the exploiting company reaps enhanced profit for a little while? What if engineers and managers receive large remuneration? They are earned out of what was previously wasted, wherefore no one has been deprived of anything that previously he had. Competition, indeed, quickly reduces profits and remunerations below what they ought to be, and in the end the people enjoy the whole of what has accrued from the brains of the few. Thus has come the uplift in the economy of the world from the beginning.

Germany Showing the Way

FROM Great Britain comes a curious report of opinion that the Dawes plan for the management of German reparation may not long survive; not that it is a defective plan in any respect, not that it is failing to do anything expected of it, but that it is inherently producing German competition in manufacturing that is adverse to British interests, and may likewise be to France. If Germany be paying up, and if Great Britain and France have to transfer all the proceeds in liquidation of their debts to America, the question is likely to arise, What is the use?

It is reported that the Germans are working like beavers, putting in long hours, living abstemiously, and cooperating in ways that in British eyes look almost criminal. It is alleged that among German industrialists there is unlimited exchange of information, that there are no longer any secrets, technical or otherwise, that there is much pulling together for the common weal.

Instead of deploring such a situation, if it exists, and it is to be hoped that it does, the British, and also the French, should learn a lesson from the German book and conduct themselves likewise. We in America know that great industrial strides, beginning in the last decade of the last century, were coincident with our abolition of the tradition of industrial secrecy that we had inherited from our British forebears; that our new economic spurt, following the World War, was coincident with our appreciation of the benefit of further transparency in industry as developed by constant, minute and elaborate statistical surveys, which was one of the few valuable things we got out of the war.

Secrecy in technical operations is a perpetualizer of bad practice. The plant of closed doors is pretty sure to be doing things whereof its management ought to be ashamed, and often is. Economic transparency is a disinfectant against evil speculation, promotes evenness of operation, continuity in the employment of labor, and consequently tends to make labor contented.

Those lessons have not yet been taught or learned in Great Britain. A distinguished British smelter once told the writer that he had been working for twenty-five years at a certain place and had never been inside the gates of another smeltery of the same kind in the same place. A distinguished statistician of practical contacts has found that among all the major countries of the world the British statistical position in some important industries is the most unsatisfactory and defective, owing to the unwillingness of British producers to cooperate either among themselves or with anybody

else. However, in academic statistics Great Britain is rather elaborate and does well.

France is more or less in the same position as Great Britain, with the difference that it has a more self-contained economy, that it has a narrower foreign outlook, and that it is not so much of a manufacturing country. The French are, however, capable of learning. During the last year or two we have had visits from leading French industrialists who have returned home amazed and gratified over their reception by their American colleagues, and the frankness with which the doors of our works were opened to them and the discussion of our practices, costs, etc. Each of these gentlemen left us with assurances that in so far as Americans were concerned their future policies would be new and like our own. The important thing, though, is whether they have learned this lesson in respect to each other.

Some British journals and some British mercantile houses have sent commissions to this country lately to examine our industrial ways. It has been reported that Premier Baldwin, as a gesture toward allaying irritation over some international relations, proposes to send a commission to study our industrial methods and all the things that go into the composition of our national economy. This will be the big thing of his political career, if he sends a good commission and if the British people profit from its study.

In brief, the success of the American people following the disaster of the war has been due to their intelligence, to nothing less. If the Germans be entering upon the road of prosperity their inspiration will also be intelligence. It is of course human nature for the unsuccessful person to be jealous of the rich man, and to ascribe the success of the latter to many favors other than the simple things of hard work, intelligent work, thrift and cooperation. So it is with nations. American success, and German success if it comes, should not be the subject of jealousy, but rather of emulation.

Building and Earnings

IT is commonly recognized that building operations are now tending downward rather than upward. Memory associates decreases in the volume of building with unfavorable turns in general business, sometimes leading to depression.

Analysis of past performances shows that there were two distinct elements when a period of heavy building was followed by a period of depression, with lighter building. First, there was the decrease in the sum total of activity resulting from the decrease in building. Second, there was the influence upon profits and employment of labor caused by industrial enterprises becoming unremunerative.

Several times an excess of facilities has been provided, in transportation and in manufacturing, beyond what the public could naturally engage. A period of light earnings and employment followed, during which the country grew up to the full measure of the facilities, whereupon everything became satisfactory again.

The kind of building that is understood now to be decreasing, however, is in housing facilities, rather than in manufacturing or in transportation. Housing facilities can always be utilized, for the people can live in the newer and better accommodations. There is no definite line between the structure that should be occupied and the structure that should not. The line moves up and down according to circumstances. It moved far down in 1917, 1918 and 1919. Unsuitable buildings were occupied and there was much crowding.

It is an item of much less consequence if the money yield in dwelling houses, or even hotels and office buildings, goes down than if the yield in manufacturing and transportation enterprises goes down. The adjustment is much simpler.

That a decrease in building operations reduces the sum total of business done cannot be denied; but it has been quite well recognized that competition, particularly on the part of building trades artisans, has much room in which to reduce building costs. Such competition has been greatly needed. If ever competition were the life of trade there is opportunity for building to take on renewed life by costs coming down.

There are great opportunities, by harder work, by more efficient work on the part of the individual and by greater efficiency through free employment of men best suited to the work, involving elimination of the jurisdictional rules that have been the bane of the building trades. Not the least of the items in connection with the changes that genuine competition would involve is the much freer use of steel in dwelling-house and other small-structure building. Given a free opportunity to use steel, there would be demand for many houses with abandonment of less suitable houses now occupied.

These are adjustments that can be made. It is quite different from a situation in which excess building had produced too many steel mills, too many miles of railroad or too much electric generating capacity.

Apprentices to Hold Molding Contest

The committee on apprentice training of the American Foundrymen's Association has organized an apprenticeship molding contest of national scope. Molding contests have been held in five districts: Wilmington, Del.; East Cambridge, Mass.; Erie, Pa.; Milwaukee, and in the Moline, Ill., Rock Island, Ill., and Davenport, Iowa, district. The castings of the apprentices winning the contests in the district contests will be on display in a booth at the Detroit convention. A committee of judges of the A. F. A. will select the best castings from those on display and award prizes to the best in each group of the iron, steel and non-ferrous entries. The German foundry association is planning to have on display the material of an apprentice training course, while the work of the French foundry high school will be on exhibit.

A discussion session on apprentice training will also be held at which those who have been undertaking foundry apprentice training will explain their work.

The various sand testing apparatus developed under the supervision of the joint committee on molding sand research will be on display. Demonstrators will be on hand to explain the operation of the equipment and the methods of testing.

Small Decline in August Iron Output

Estimated Returns Show Daily Rate Only 875 Tons, or About One Per Cent, Less Than July—Net Loss of Two Furnaces

FROM a compilation of data collected by wire on Aug. 31, the decline in pig iron production in August from that in July was very small. With the last two days of the month estimated in most cases by the producing companies, the output was 3,196,190 gross tons or 103,103 tons per day for the 31 days of August. This is a decline of only 875 tons, or less than 1 per cent, from the 103,978 tons per day made in the 31 days of July.

There were eight furnaces blown in and 10 blown out or banked, making a net loss of two for the month. This compares with a net loss of four furnaces in July. There were 214 furnaces active on Aug. 31 as compared with 216 on Aug. 1.

The Bethlehem Steel Corporation's schedule calls for putting on two additional blast furnaces this week. A furnace at Sparrows Point, Md., was to go in on Wednesday and one at Johnstown, Pa., will be lighted Saturday.

Furnaces Blown In and Out

Among the furnaces blown in during August was the Buffalo B furnace and the Genesee furnace of the M. A. Hanna Co. in New York; one furnace of the New Jersey Zinc Co. in the Lehigh Valley; one Carrie and one Lucy furnace of the Carnegie Steel Co. and one Eliza furnace of the Jones & Laughlin Steel Corporation in the Pittsburgh district; the Dover furnace in the central and northern Ohio district and No. 4 North Birmingham furnace of the Sloss-Sheffield Steel & Iron Co. in Alabama.

Among the furnaces blown out or banked during August was one Donner furnace of the Donner Steel Co. in New York; one furnace at the Bethlehem plant of the Bethlehem Steel Corporation and one furnace of the New Jersey Zinc Co. in the Lehigh Valley; one Carrie and one Isabella furnace of the Carnegie Steel Co. in the Pittsburgh district; the Punxy furnace in western Pennsylvania; one Central furnace of the American Steel & Wire Co. in northern Ohio; one Gary furnace in the Chicago district; one Mayville furnace in Wisconsin, and No. 3 North Birmingham furnace of the Sloss-Sheffield Steel & Iron Co. in Alabama.

Production by Districts

The estimated August production by districts is given in the table. The complete returns, giving the actual output for all furnaces for the month of August, will be published in THE IRON AGE, Sept. 9.

Pig Iron Production by Districts, Gross Tons

	Aug. (31 days)	July (31 days)	June (30 days)	May (31 days)
New York	198,925	206,252	195,699	229,640
New Jersey	.....	.....	.....	.....
Lehigh Valley	80,580	84,223	92,034	92,696
Schuylkill Valley	67,295	66,531	68,190	81,563
Lower Susquehanna and Lebanon Valleys	35,028	35,945	35,094	36,845
Pittsburgh district	666,485	622,772	653,044	712,232
Shenango Valley	108,965	117,504	134,156	139,201
Western Penna.	127,604	127,622	123,924	145,095
Maryland, Virginia and Kentucky	85,535	82,963	85,901	94,691
Wheeling district	108,329	108,110	117,838	133,792
Mahoning Valley	321,825	317,307	313,633	341,801
Central and Northern Ohio	350,544	348,371	323,904	344,553
Southern Ohio	35,914	48,468	49,438	49,137
Illinois and Indiana	643,766	668,564	661,758	664,477
Mich., Minn., Mo., Wis., Colo. and Utah	121,278	137,135	137,753	153,072
Alabama	238,623	246,124	238,491	254,245
Tennessee	5,500	5,447	5,452	3,388
Total	3,196,190	3,223,338	3,235,309	3,481,428

INGOT IRON PIPE TO BRAZIL

British to Fabricate 20 Miles of Water Pipe from Ingot Iron Plates Rolled in Britain and United States

A contract for 20,000 tons of riveted pipe to be used in the water supply system of Sao Paulo, Brazil, has been secured by Braithwaite & Co., Ltd., a large British fabricating company, in which Dorman, Long & Co., Ltd., are interested. The line will be 20 miles long and of 90-in. diameter pipe fabricated from ingot iron plates, produced by the American Rolling Mill Co. and its United Kingdom licensees. About 75 per cent of the plates will be 7/16 in. thick and the remainder ½ in. thick.

The bulk of the tonnage will be furnished to Braithwaite & Co. by Guest, Keen & Nettlefolds, Ltd., one of the British licensees of the American Rolling Mill Co., and two other British mills, while a portion will be rolled at the Ashland, Ky., plant of the American Rolling Mill Co. The transaction with Braithwaite & Co. is being handled by the Armco International Corporation.

A cast iron pipe manufacturer with shops in the Birmingham district has applied to the Alabama Public Service Commission for freight rate on imported pig iron to be brought by rail from the port of Mobile to Birmingham. The tonnage is not mentioned.

Warwick Blast Furnaces May Be Leased or Sold

The Warwick blast furnaces at Pottstown, Pa., which recently reverted to their owners, the Warwick Iron & Steel Co., after years of operation by the Eastern Steel Co., Pottsville, Pa., will be advertised for sale or lease. The furnaces came back into the possession of the Warwick Iron & Steel Co. when the Eastern Steel Co., now in receivership in equity, defaulted on the rental. There are two stacks with an annual rated capacity of 364,750 gross tons. W. S. Pilling, 1500 Chestnut Street, Philadelphia, is president of the Warwick Iron & Steel Co.; George E. Schlegelmilch, Stephen Girard Building, Philadelphia, is vice-president, and H. F. Hallman, Real Estate Trust Building, Philadelphia, secretary-treasurer.

Gas Producer Tied to By-Product Plant

A new battery of 57 by-product coke ovens to be installed at the Lackawanna works of the Bethlehem Steel Corporation is to have a gas producer which will use the small coke and breeze to supply heat for the new ovens and to release all of the oven gas for use in steel making. This will mark the first time that by-product coke ovens have been tied to a gas producer in a steel plant so that the richer gas of the ovens might go to the open-hearth furnaces. The Koppers Co., Pittsburgh, will install both the ovens and the gas producer.

MACHINERY INTO CHINA

Great Britain Furnished Lion's Share—United States, Japan and Germany Follow

WASHINGTON, Aug. 30.—Total imports of industrial machinery into China during 1924, the latest year for which statistics are available, amounted to $18,672,000, as compared with $21,904,000 and $41,387,000 for 1923 and 1922 respectively, according to the industrial machinery division, Department of Commerce. While such a comparison, with the years immediately preceding, may appear unfavorable, a study of this trade in connection with that of pre-war years reveals some facts which are most encouraging. The 1924 machinery import trade represents four times the average value for the pre-war years 1910 to 1913, inclusive, which amounted to only $4,604,000.

In view of the political disturbances which China has been experiencing, this showing is a tribute to the trade vitality of that country, and argues well for renewed activity when conditions become more favorable. This trade expansion is indicative also of the growing industrialization of China, which is taking place along with that of other Asiatic countries.

Sources of Machinery Sent to China

A study of the participation of the machinery producing countries of the world in the Chinese trade reveals some significant developments. In 1924 Great Britain, the principal supplier, shipped to China industrial machinery valued at $5,519,384, the United States and Canada being second, with a total of $3,859,731. Japan's total was $3,520,916 and Germany's $3,179,075. This contrasts strikingly with the pre-war situation, as revealed by averages for the four years 1910 to 1913, inclusive, which were as follows: Great Britain, $1,730,050; Germany, $847,735; Japan, $409,224, and the United States and Canada, $331,620. It will be seen that, in comparison with this pre-war period, shipments from both Great Britain and Germany have increased more than three-fold, those from Japan nearly nine-fold, while those from the United States have risen almost twelve-fold, or more than the shipments of any of the other countries.

Of outstanding importance in the textile machinery market of China is the growing participation of Japan, which has increased from an average of only 14 per cent for the pre-war period to 37 per cent for 1923 and 1924. Japan now ranks second only to Great Britain as a source for such equipment.

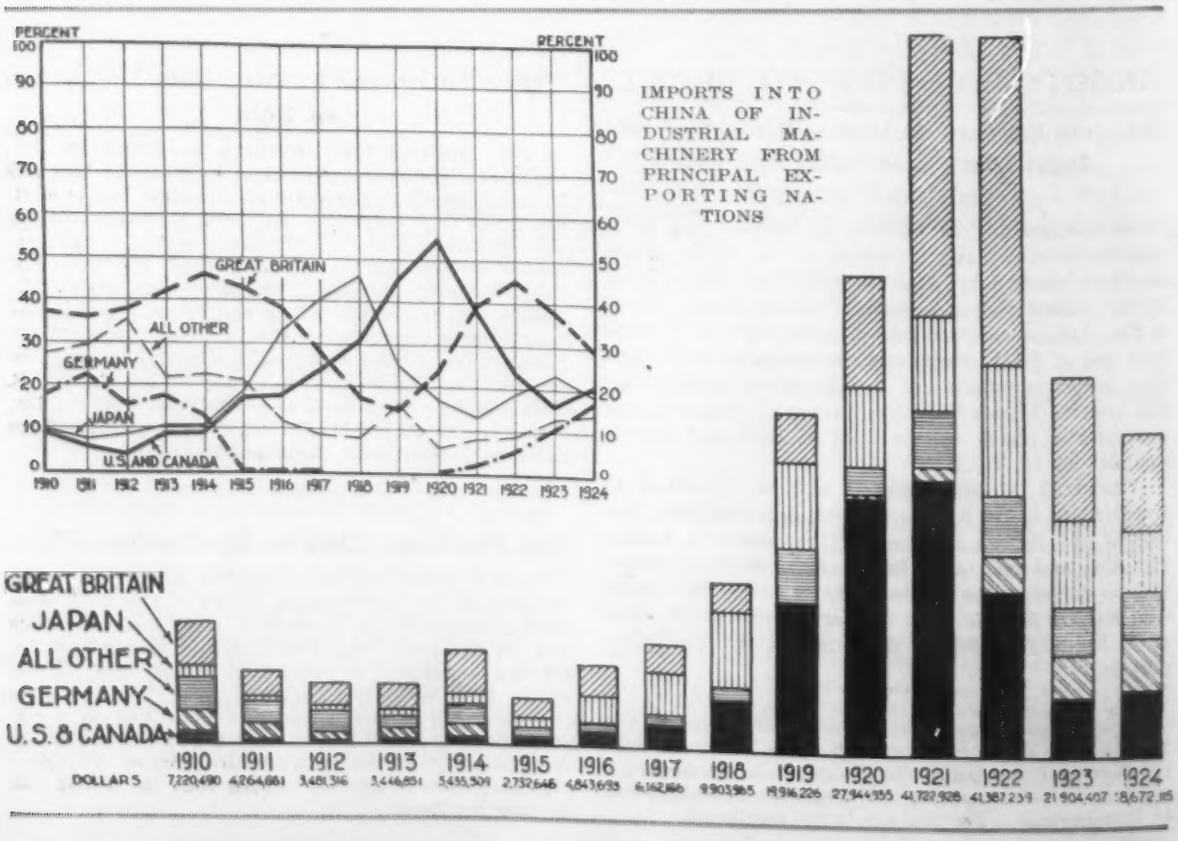
Machine Tool Market Contested

China imported in 1924 machine tools to the value of $529,894, as compared with $393,590 in 1913, and an average of only $21,268 for the pre-war period 1910 to 1913, inclusive. This market for machine tools is closely contested and the relative importance of the principal countries enjoying a share in this trade varies considerably from year to year. Thus, in 1924 the United States ranked first, supplying 29 per cent of the total imports of machine tools, with a value of $153,094, but closely followed by Japan, with a share of nearly 28 per cent and an import value of $147,017. In 1923 and 1922 the situation was quite different, for in these years Germany held first rank, with 44.5 per cent and 31 per cent respectively; while the United States was second in importance in 1923 and shared third place with Great Britain in 1922, both of these countries being surpassed in that year by Japan.

Malleable Castings Drop Sharply

July production of malleable castings is reported by the Department of Commerce at 55,555 tons, the smallest figure in more than a year and a half. The compilation is from 139 identical plants, of which six were idle in July. The figure compares with 61,023 tons in June and with 57,172 tons in July, 1925.

For seven months, total production has been 460,018 tons, an increase of 7½ per cent over the 427,609 tons of the first seven months of 1925. In both years production ran ahead of shipments, the figures of which totaled 431,513 tons in the first seven months of 1926. Shipments in July were 55,029 tons. Orders booked have fallen below shipments each year, the total for the first seven months this year having been 386,063 tons. It happens that several plants have not reported orders, but they represent less than 7 per cent of the production reported. The capacity operated in July figured out at 51.1 per cent, while for the seven months it was 59.7 per cent.



IMPORTS INTO CHINA OF INDUSTRIAL MACHINERY FROM PRINCIPAL EXPORTING NATIONS

Change Sheet Base and Gage Extras

No. 24 Gage Made Base for Black and Galvanized Sheets— Differentials Revised to Make Prices for Various Gages More Nearly in Keeping with Costs

SHEET steel manufacturers representing the major portion of the country's productive capacity have announced that effective Sept. 1, sales of one-pass, cold-rolled, box-annealed black sheets and of galvanized sheets will be on a new base of No. 24 gage, instead of No. 28 gage. At the same time they announced the adoption of a new set of gage differentials applicable on black, galvanized and all other finishes of sheets the prices of which are based on the price of black sheets. The present base gages and gage differentials on tin mill black sheets and on blue annealed sheets are not affected, and all extras for width and length and miscellaneous extras also remain unchanged.

Old Differentials Not in Keeping With Costs

The establishment of the new base gage and the revised gage differentials finds its primary reason in the fact that for some time selling prices have been out of alinement with costs. Prices of the heavy gages have allowed a profit, but this has been largely dissipated, it is said, by selling prices at or below the producing costs of the light gages. Since there has been a profit in the heavy gages, the temptation has been strong to name prices on them which, reckoned on the standard gage differentials, have figured back to very low base prices. Possibly concessions on the heavy-gage sheets in themselves would not have been a serious matter, but it so happens that there are few users of heavy sheets who do not also use the lighter gages, and getting heavy sheets at one base, they have usually insisted on like price treatment on the light sheets.

It is entirely natural that such a situation should get attention, and the new card is the result. It means that in the future sheets of lighter than No. 24 gage will carry higher prices, in keeping with producing costs, and that the heavier gages will be lower than they have been, also in keeping with costs. It appears from a comparison of the new and old cards that some companies, in establishing new base prices of 3c., Pittsburgh, for No. 24 gage black sheets and 3.85c., Pittsburgh, for No. 24 gage galvanized sheets, used 4.30c., Pittsburgh, as their price for No. 28 gage galvanized and 3.15c., Pittsburgh, for No. 28 gage black sheets. What the new card means is clearly shown in the accompanying table.

Increase $1 to $3 a Ton on Nos. 25 to 30

Black sheets in gages Nos. 25 to 30, inclusive, will be quoted at $1 to $3 a ton more than formerly, but in all the commonly used gages heavier than No. 24 gage, except No. 21 gage for which the price is the same as under the old card, reductions of $1 to $4 have been made. The cut amounts to $5 a ton in No. 17 gage, but there is not much call for that thickness or much production of it. There has been a like reduction in Nos. 10 and 11 gages, but that is not important, since most of the business in gages heavier than No. 16 is in blue annealed sheets.

Galvanized sheets of No. 30 gage are reduced $1 a ton in the new card; No. 29 gage sells at the same price as under the old card, while advances of $1 to $2 a ton are made in Nos. 25 to 28 gages, inclusive. Reductions in the commonly used gages heavier than No. 24 run from $1 to $4 a ton.

Base on Tin Mill Black Plate Unchanged

Tin mill black sheets for a long time have been sold at the same base gage and gage differentials as sheet mill black sheets. This alinement is broken by the new card, and tin mill black sheets will continue to be sold on a base of No. 28 gage, subject to the old gage differentials. It is asserted that in tin mill practice production costs are least in the lighter gages and greatest in the heavier gages; consequently the present base and gage differentials called for no revision.

The gage-size brackets of the new card are substantially the same as those of the sheet and jobbing mill scale of the Amalgamated Association of Iron, Steel and Tin Workers. Incidentally, the new base and gage differentials will result in increased wages for the mill crews, since adjustments which will continue at least until June 1 next are based on the average sales prices of Nos. 26, 27 and 28 gage black sheets. While manufacturers representing less than 25 per cent of the sheet-making capacity of the country sign the wage scale agreement of the Amalgamated association, the results of bi-monthly examinations of the sales records of signatory companies govern the wages paid at all other mills in the country except those of the American Sheet & Tin Plate Co. The last wage conference, held in May at Atlantic City, between the wage scale committee of the Amalgamated association and representatives of the manufacturers, continued sales prices of Nos. 26, 27 and 28 gages as the basis of wage settlements.

It will probably take a little time for the new card to become fully effective, because business now on the books is not affected and there are few manufacturers who are not fairly well obligated for the month of September.

NEW AND OLD BASES AND EXTRAS FOR BLACK AND GALVANIZED SHEETS

One-Pass, Cold-Rolled, Box-Annealed Black Sheets
(Per 100 Lb.)

Gage	New Card Differential	New Card Price	Old Card Differential	Old Card Price	Change in Price
30	+ $0.50	$3.50	+ $0.20	$3.35	+ $0.15
29	+ 0.40	3.40	+ 0.10	3.25	+ 0.15
28	+ 0.25	3.25	**Base**	**3.15**	+ 0.10
27	+ 0.15	3.15	— 0.05	3.10	+ 0.05
25-26	+ 0.10	3.10	— 0.10	3.05	+ 0.05
24	**Base**	**3.00**	— 0.15	3.00	....
23	— 0.05	2.95	— 0.15	3.00	— 0.05
22	— 0.05	2.95	— 0.15	3.00	— 0.05
21	— 0.05	2.95	— 0.20	2.95	....
20	— 0.20	2.80	— 0.20	2.95	— 0.15
19	— 0.20	2.80	— 0.20	2.95	— 0.15
18	— 0.20	2.80	— 0.20	2.95	— 0.15
17	— 0.30	2.70	— 0.20	2.95	— 0.25
16	— 0.30	2.70	— 0.25	2.90	— 0.20
15	— 0.30	2.70	— 0.25	2.90	— 0.20
14	— 0.35	2.65	— 0.30	2.85	— 0.20
13	— 0.35	2.65	— 0.30	2.85	— 0.20
12	— 0.35	2.65	— 0.35	2.80	— 0.15
11	— 0.45	2.55	— 0.35	2.80	— 0.25
10	— 0.45	2.55	— 0.35	2.80	— 0.25

Galvanized Sheets
(Per 100 Lb.)

Gage	New Card Differential	New Card Price	Old Card Differential	Old Card Price	Change in Price
30	+ $0.90	$4.75	+ $0.50	$4.80	— $0.05
29	+ 0.70	4.55	+ 0.25	4.55	....
28	+ 0.50	4.35	**Base**	**4.30**	+ 0.05
27	+ 0.35	4.20	— 0.15	4.15	+ 0.05
25-26	+ 0.25	4.10	— 0.30	4.00	+ 0.10
24	**Base**	**3.85**	— 0.45	3.85	....
23	— 0.15	3.70	— 0.45	3.85	— 0.15
22	— 0.15	3.70	— 0.45	3.85	— 0.15
21	— 0.15	3.70	— 0.60	3.70	....
20	— 0.20	3.65	— 0.60	3.70	— 0.05
19	— 0.20	3.65	— 0.60	3.70	— 0.05
18	— 0.35	3.50	— 0.60	3.70	— 0.20
17	— 0.50	3.35	— 0.60	3.70	— 0.35
16	— 0.50	3.35	— 0.75	3.55	— 0.20
15	— 0.50	3.35	— 0.75	3.55	— 0.20
14	— 0.60	3.25	— 0.90	3.40	— 0.15
13	— 0.60	3.25	— 0.90	3.40	— 0.15
12	— 0.60	3.25	— 0.90	3.40	— 0.15
11	— 0.70	3.15	— 1.00	3.30	— 0.15
10	— 0.70	3.15	— 1.00	3.30	— 0.15

ADDED FOUNDRY PAPERS

Important Changes in Technical Program for the Foundrymen's Convention

The technical program for the thirtieth annual convention of the American Foundrymen's Association and the second international foundrymen's congress to be held in Detroit the week of Sept. 27, was published in THE IRON AGE, July 15, page 153. Since then some changes have been made which are briefly as follows:

To the non-ferrous session on aluminum and aluminum alloys, scheduled for 3 p. m. Monday, Sept. 27, a paper entitled "Aluminum Castings of High Strength," by R. S. Archer and Dr. Zay Jefferies, Aluminum Co. of America, Cleveland, has been added.

In the session on core binders and cores, scheduled for the same day and hour, a paper entitled "Methods for Determining the Properties of Cores Made with Cereal Binders," by H. L. Campbell, University of Michigan, Ann Arbor, has been substituted for a paper entitled "Core Oil Specifications," by V. A. Crosby, Studebaker Corporation, South Bend, Ind.

For the session on steel founding, scheduled for Tuesday morning, Sept. 28, an additional paper entitled "Defects in Steel Castings," is by R. S. Munson, Atlantic Steel Castings Co., Chester, Pa.

For the session devoted to cupola practice, scheduled for the afternoon of Tuesday, Sept. 28, H. W. Dietert, United States Radiator Corporation, Detroit, has changed the title of his paper to "A Study of Gating Iron Castings" and the paper entitled "Cupola Practice in a Continuous Foundry," by H. Rayner, Dodge Brothers, Detroit, has been canceled. The exchange paper of the Belgian Technical Foundry Association, entitled "Chaplets in Heavy Iron Castings," by Ivan Lamoureux, has been transferred to this session.

For the session on malleable cast iron, to be held the morning of Wednesday, Sept. 29, "A Study of Malleable Cast Iron," by Dr. O. Quadrat has been added to the program as a contribution from the Czechoslovakian Foundry Association.

Two new papers are scheduled for the session on casting nickel alloys, Sept. 29, "The Utility of Nickel-Manganese and Iron Alloys in Making Special Brasses," by Dr. W. Guertler, Technical High School, Charlottenburg, Germany, and "Exudation on Brass and Bronzes," by W. B. Price and A. J. Phillips, Scovill Mfg. Co., Waterbury, Conn.

For the session on foundry costs, on the afternoon of Wednesday, Sept. 29, two papers on "Costs" have been arranged, one by E. W. McCullough, manager department of manufacture, United States Chamber of Commerce, Washington, and the other by R. E. Belt, American Malleable Castings Association, Cleveland.

The session on foundry sand control, will be held Thursday morning, Sept. 30 and four papers have been arranged as follows: "Some Practical and Technical Data Obtained from the Use of Clay Additions to Molding Sand Heaps," by R. F. Harrington, A. S. Wright and M. A. Hosmer, Hunt-Spiller Mfg. Corporation, Boston; a contribution from the New England Foundrymen's Association; "Strength Testing of Foundry Sands," by T. C. Adams, Cornell University, Ithaca, N. Y. and "Tests to Show Proper Mixing of Foundry Sands," by H. W. Dietert, United States Radiator Corporation, Detroit.

A new paper on cast iron, scheduled for the afternoon of Thursday, Sept. 30, is entitled "The Effect of Various Alloys on the Growth of Gray Iron Under Repeated Heatings and Coolings," by R. R. Kennedy and G. J. Oswald, National Cash Register Co., Dayton, Ohio.

New papers for the second session on foundry sand control, on the morning of Friday, Oct. 1, are "The Effect of Mulling Time on Some of the Properties of Sand," by A. V. Leun, Cornell University, Ithaca, N. Y., and "Some Experiments to Determine the Effect of Clay on the Fusion Point of Molding Sands," by D. W. Trainer, also of Cornell University.

Two sessions not scheduled in the tentative program have been arranged, both to be carried on in foreign languages. The first, to be conducted in the French and Belgian languages, is on the afternoon of Tuesday, Sept. 28, with Robert Ronceray as chairman. The other session will be in German on Wednesday afternoon, Sept. 29, with Dr. Richard Moldenke as chairman. The complete program calls for 24 sessions, including round table luncheon discussions.

To Investigate Alleged Dumping of German Hoops

WASHINGTON, Aug. 31.—The Appraiser of Customs at Boston has issued several notices of suspected dumping of hoop steel into the United States from Germany. This is preliminary action looking to an investigation of the matter in order to ascertain whether or not the competing American industry has been injured. Should it be found that it is, the Secretary of the Treasury would issue an anti-dumping notice assessing a special dumping duty, which would be equal to the difference between the foreign market value and the purchase price or the exporter's sales price. In the absence of such value the duty would be the difference between the cost of production and the exporter's sales price. The notices issued were the outgrowth of examination of invoices of hoop steel shipments from Germany.

Higher Rates on Foreign Steel to St. Louis Approved

WASHINGTON, Aug. 31.—In a decision handed down last week the Interstate Commerce Commission held that the application of domestic instead of import rates was justified on foreign iron and steel products shipped to St. Louis over lines east of the Mississippi River from New Orleans and other Gulf ports, excluding Texas ports. The commission also approved an increase in rates to Little Rock and Pine Bluff, Ark. On the other hand, it decided against the application of domestic rates on iron and steel products imported through Texas ports to St. Louis, Little Rock, Pine Bluff and points in Oklahoma and Kansas.

The present import rate to St. Louis, Little Rock and Pine Bluff is 41.5c. per 100 lb. The new rate to St. Louis over lines east of the Mississippi River will be 50c. The new rates to Pine Bluff from New Orleans and other Gulf ports outside of Texas will be 52.5c. on structural steel and 47c. on other finished steel products. To Little Rock they will be 53.5c. on structural steel and 48.5c. on other steel.

The commission said that the record indicates that the prices of foreign steel at point of manufacture are approximately one-half those of domestic steel. It was pointed out, moreover, that even under the proposed rates foreign steel will retain a considerable advantage over domestic steel.

Anent the proposed increases in rates from Texas ports, which were found unjustified, American iron and steel interests showed that the present rates from Galveston and Houston to Oklahoma and Kansas points are substantially lower on a mileage basis than domestic rates from Kansas City and St. Louis to the same destinations. They filed various exhibits indicating that, on the basis of present prices of steel at Chicago and the freight rates to destination, delivered prices on domestic steel at the Kansas and Oklahoma points are considerably higher than those on foreign steel.

New Cold-Rolled Strip Mill at Rome, N.Y.

The Rome Strip Steel Co., incorporated for $150,000, will engage in the manufacture of cold-rolled strip steel at Rome, N. Y. The equipment, consisting of 10 and 12 in. mills and auxiliary machinery, is now being installed, with capacity of 1000 tons per month. Operations will be begun about the middle of September.

H. B. Hinman, who was with the Trumbull Steel Co., Warren, Ohio, for four years and previous to that with the Stanley Works, New Britain, Conn., for eight years, will be general manager.

THOMAS TURNER

Mr. Turner is to receive the Seaman medal. Mr. Shaw will be awarded the

JOHN SHAW

Penton medal. Mr. Ronceray will receive the Whiting medal

E. V. RONCERAY

To Honor Foreign Foundrymen

Gold Medals to Be Awarded to Three British and French Metallurgists by American Foundrymen

THREE prominent European foundrymen and metallurgists will be given gold medals by the board of directors of the American Foundrymen's Association at the coming annual convention in Detroit on the recommendation of the board of awards of the association. The presentations will be made at the annual banquet, Thursday evening, Sept. 30, during the week of the convention and exhibition. The medals are granted in recognition of distinguished services to the foundry industry.

Eugene Victor Ronceray, of Thiais, France, has been chosen to receive the J. H. Whiting gold medal; John Shaw of Sheffield, England, the John A. Penton gold medal, and Prof. Thomas Turner, University of Birmingham, Birmingham, England, the Joseph S. Seaman gold medal.

The board of awards, in view of the fact that convention week at Detroit takes in also the second international foundrymen's congress, selected three men who have been most prominent in European circles in their contributions to the advancement of the foundry industry. Professor Turner is one of the British metallurgists whose work has been of fundamental importance in the casting industry. John Shaw, foundryman and student of cast iron metallurgy, has been influential in the development of British foundry practice. E. V. Ronceray is recognized as being foremost in the development of French foundry practice. He was an organizer of the French foundry school and the inventor and manufacturer of molding machines which have largely aided in putting French foundries on a production basis.

The American Foundrymen's Association medals which are to be presented to these men at the thirtieth annual convention of the association, are three of the four gold medals authorized by the association for presentation from time to time to outstanding men connected with the industry. The medals were made possible by gifts to the association contributed by four charter members and past officers: John A. Penton, the first secretary; Joseph S. Seaman, the third president; W. H. McFadden, the tenth president, and John H. Whiting, vice-president in 1906.

Eugene V. Ronceray is president and managing director of S. A. des Etablissements Bonvillain et Ronceray, Choisy-le-Roi, near Paris, and he is also president and managing director of the Universal System of Machine Molding & Machinery Co., London, as well as a director of studies at the foundry high school at Paris. He was born Nov. 15, 1869, and took his engineering degree in 1891 at the Ecole Nationale des Arts et Metiers of Chalons. Mr. Ronceray has devoted the greater part of his life to foundry practice and is one of the founders of the Association Technique de Fonderie de France, of which he is vice-president. He has contributed a number of papers to various technical journals and societies. He lectured in the United States at various foundry centers in 1907, presenting a paper at the foundrymen's congress in Philadelphia in that year and at the Rochester convention in 1922. In 1921 he originated the idea of a special foundry school in a lecture which he delivered in Liége, Belgium, and three years later the first foundry school was inaugurated in Paris.

Thomas Turner is widely known to foundrymen for his research on the influence of silicon on cast iron. He also has done much important work in the non-ferrous field, and it is due to his energy and initiative that the metallurgical school of Birmingham University has attained prominence. He was born in 1861 and was graduated from the Royal School of Mines, London. He has written several books on metallurgy and educational subjects for various societies and trade papers. Professor Turner was presented with the Bessemer gold medal in 1925 by the Iron and Steel Institute.

John Shaw is one of the foremost British foundrymen and has contributed extensively to the technical press on practical and metallurgical phases of the foundry industry. He was graduated from Liverpool University, served for a time as an apprentice with the Widnes Foundry Co., and became assistant foreman at the age of 19, with full charge of the foundry at 22. For the past several years he has been manager of the Newhall works of the Brightside Foundry & Engineering Co., Ltd., Sheffield, where iron castings up to 120 tons have been made. Mr. Shaw has been prominently identified with foundry organization affairs for many years and was presented with the Oliver Stubbs gold medal at the 1924 meeting of the Institute of British Foundrymen. He has been selected to present the 1926 exchange paper on behalf of the institute at the Detroit meeting.

Four new bar mills at the Cambria plant, Bethlehem Steel Co., Johnstown, Pa., will be inspected Sept. 25 by members of the Association of Iron and Steel Electrical Engineers. The new power plant will prove another point of interest. A special train will leave Pittsburgh at 8 a. m., Eastern standard time, to convey members from that city. The inspection trip will start at 10 a. m. at main entrance of the Gautier department of the works.

Iron and Steel Markets

Better Outlook for Fall Demand

Large Orders for Light Sheets—High August Output in Pig Iron and Steel—Good Prospects for Line Pipe and Track Buying

SEPTEMBER opens with substantial indications of a continuance of activity in the steel trade on the scale that has made the two mid-summer months stand out so far above the July-August average for the five preceding years. Several developments of the past week in respect to mill operations as well as prospective demand have been more definitely favorable.

A gage of the high August rate of steel production is furnished by our pig iron statistics gathered on the last day of the month. Producers' figures from all the furnaces in the country, with Aug. 31 estimated, give a total of 3,196,190 tons, or 103,103 tons per day, against 3,223,338 tons in July, or 103,978 tons a day—a falling off of but 875 tons a day, against 3866 tons in July.

Furnaces in blast Sept. 1 numbered 214; on Aug. 1 there were 216. Ten blew out in the month and 8 blew in. Two Bethlehem furnaces blow in this week, which will more than balance this loss.

Reckoning from the August output of steel-making pig iron, estimates of last month's steel ingot production put it above that for July. The Steel Corporation's average was about 85. Bethlehem's schedule called for 77 per cent, its actual output was close to 82 per cent, and its scheduled rate for September is 85.

Leading steel producers are now counting on larger operations in the next 60 days than they were willing to predict in the lull that came in mid-August. Buying of sheets in the past week has been on a large scale. Railroad demand—largely for tracklaying, as the car situation has not yet developed—is coming earlier than in 1925. Fall consumption of steel for automobiles will exceed last year's, and structural mills see more fall business ahead than was indicated 30 days ago.

Chicago district steel mills report shipments in June, July and August 50 per cent greater than for any like period in their history, while production averages 85 per cent of capacity.

Much of the week's sheet business was in lighter gages. The new schedule of extras, worked on for months, was made effective Sept. 1 by leading producers. It advances the light gages $3 to $4 a ton and reduces some of the heavier gages. Many buyers of light sheets covered at the old rates.

Thus sheet mills start September with full order books. Several automobile companies have placed good orders for body sheets. While most recent buying at Detroit has been for October, some car builders are now figuring on fourth quarter contracts for both sheets and cold-rolled strip steel.

Rail mills look for even larger rollings for 1927 than they have had this year. A leading line is likely to contract in September. Already about 150,000 tons has been taken by several roads. In addition to the 32,000 tons placed in Alabama the Atlantic Coast Line has bought 20,000 tons of Bethlehem rails.

For the 3000 cars to be repaired for the Pennsylvania Railroad 15,000 tons of steel will be furnished by a Pittsburgh mill.

Plate work is on the increase. A Providence, R. I., conduit will take 5700 tons of lock-joint pipe and the Southern California Edison Co. will get bids shortly on 7000 tons of plates for a penstock and pipe line at San Diego.

A good run of line pipe business has come out this week, notably a South American order given the National Tube Co. by the National Andean Corporation, Colombia, for 300 miles of 10-in. pipe, a duplicate of last year's contract with this corporation. The Empire Gas & Fuel Co., Oklahoma, seeks 22½ miles of 16-in. pipe and is also taking prices on the projected 450-mile gas line from Amarillo to Kansas City, Mo. An inquiry has come for 160 miles of 12¾-in. pipe for the Mexican Seaboard Oil Co., and the Lone Star Gas Co. is in the market for a round tonnage.

An item of particular interest cabled from London is the sale of 20,000 tons of ingot iron plates for a 20-mile riveted pipe line to supply water to Sao Paulo, Brazil. Braithwaite & Co., London, have the construction contract. Most of the plates will be furnished by British licensees of the American Rolling Mill Co., Middletown, Ohio, but some will be rolled at the Ashland, Ky., mill of the latter company.

Structural steel awards amounted this week to 55,000 tons, including 30,000 tons for two Staten Island-New Jersey bridges. New work up for bids totals 28,500 tons, including 4000 for a medical building at Rochester, Minn., and 3000 tons for a Washington office building. A Jersey City refrigerating plant takes 2400 tons of bars and 2500 tons of structural shapes, which have been awarded.

Scrap markets are strong, with prices showing an upward trend, particularly in the East, where 15,000 tons of heavy melting steel was sold at $17.50, delivered. Sales of steel scrap in the Pittsburgh district have been made at $18.25.

In pig iron the buying of 25,000 tons of basic in Eastern Pennsylvania was the chief item, prices running from $20.75 to $21, the lowest of the year. In Ohio, Lake furnaces have again been naming prices in the southern part of the State which Ohio River producers did not meet.

Exports of iron and steel from the United States in July made the best total in 30 months. At 194,717 tons, the gain over June was 22 per cent. Imports, on the other hand, at 82,411 tons, were the lowest since January, falling to 34 per cent below June. Of rolled and finished steel, 162,544 tons was exported in July and 31,659 tons imported.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous

For Early Delivery

Pig Iron, Per Gross Ton:	Aug. 31, 1926	Aug. 24, 1926	Aug. 3, 1926	Sept. 1, 1925
No. 2 fdy., Philadelphia	$21.76	$21.76	$21.76	$21.26
No. 2, Valley Furnace	17.50	17.50	17.50	18.50
No. 2, Southern, Cin'ti	24.19	24.19	24.19	22.55
No. 2, Birmingham	21.00	21.00	21.00	18.50
No. 2 foundry, Chicago*	21.00	21.00	21.00	20.50
Basic, del'd eastern Pa.	20.75	21.00	21.00	20.50
Basic, Valley furnace	17.50	17.50	17.50	18.00
Valley Bessemer del. P'gh	19.76	19.76	19.76	20.76
Malleable, Chicago*	21.00	21.00	21.00	20.50
Malleable, Valley	17.50	17.50	17.50	18.50
Gray forge, Pittsburgh	18.76	18.76	18.76	19.76
L. S. charcoal, Chicago	29.04	29.04	29.04	29.04
Ferromanganese, furnace	88.00	88.00	88.00	115.00
Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Light rails at mill	34.00	34.00	34.00	35.84
Bess. billets, Pittsburgh	35.00	35.00	35.00	35.00
O.-h. billets, Pittsburgh	35.00	35.00	35.00	35.00
O.-h. sheet bars, P'gh	36.00	36.00	36.00	35.00
Forging billets, base, P'gh	40.00	40.00	40.00	40.00
O.-h. billets, Phila	40.30	40.30	40.30	40.30
Wire rods, Pittsburgh	45.00	45.00	45.00	45.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	1.90	1.90	1.90	1.90
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.22	2.22	2.22	2.12
Iron bars, Chicago	2.00	2.00	2.00	1.90
Steel bars, Pittsburgh	2.00	2.00	2.00	1.90
Steel bars, Chicago	2.10	2.10	2.10	2.10
Steel bars, New York	2.34	2.34	2.34	2.24
Tank plates, Pittsburgh	1.90	1.90	1.90	1.80
Tank plates, Chicago	2.10	2.10	2.10	2.10
Tank plates, New York	2.24	2.24	2.24	2.14
Beams, Pittsburgh	2.00	2.00	2.00	1.90
Beams, Chicago	2.10	2.10	2.10	2.10
Beams, New York	2.34	2.34	2.34	2.24
Steel hoops, Pittsburgh	2.50	2.50	2.50	2.40

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

Sheets, Nails and Wire,	Aug. 31, 1926	Aug. 24, 1926	Aug. 3, 1926	Sept. 1, 1925
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh	3.10	3.10	3.10	3.15
Sheets, black, No. 28, Chicago dist. mill	3.25	3.25	3.25	3.30
Sheets, galv., No. 28, P'gh	4.25	4.25	4.20	4.20
Sheets, galv., No. 28, Chicago dist. mill	4.40	4.40	4.40	4.35
Sheets, blue, 9 & 10, P'gh	2.30	2.30	2.30	2.25
Sheets, blue, 9 & 10, Chicago dist. mill	2.40	2.40	2.40	2.40
Wire nails, Pittsburgh	2.65	2.65	2.65	2.65
Wire nails, Chicago dist. mill	2.70	2.70	2.70	2.70
Plain wire, Pittsburgh	2.50	2.50	2.50	2.50
Plain wire, Chicago dist. mill	2.55	2.55	2.55	2.55
Barbed wire, galv., P'gh	3.35	3.35	3.35	3.35
Barbed wire, galv., Chicago dist. mill	3.40	3.40	3.40	3.46
Tin plate, 100 lb. box, P'gh	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	$15.50	$16.00	$16.00	$18.00
Carwheels, Philadelphia	17.50	17.50	17.00	18.50
Heavy melting steel, P'gh	18.00	17.50	17.00	19.00
Heavy melting steel, Phila.	17.00	16.50	15.75	17.00
Heavy melting steel, Ch'go	14.00	14.00	14.00	16.75
No. 1 cast, Pittsburgh	17.00	17.00	16.50	17.50
No. 1 cast, Philadelphia	18.50	18.00	17.00	18.00
No. 1 cast, Ch'go (net ton)	17.00	17.00	17.00	18.00
No. 1 RR. wrot., Phila.	18.50	18.00	16.50	17.50
No. 1 RR. wrot. Ch'go (net)	13.50	13.50	13.50	16.75
Coke, Connellsville. Per Net Ton at Oven:				
Furnace coke, prompt	$3.15	$3.00	$2.85	$3.40
Foundry coke, prompt	4.00	4.00	4.00	4.00
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	14.50	14.50	14.50	14.75
Electrolytic copper, refinery	14.12½	14.12½	14.25	14.37½
Zinc, St. Louis	7.42½	7.40	7.50	7.57½
Zinc, New York	7.77½	7.80	7.75	7.92½
Lead, St. Louis	8.65	8.75	8.90	9.50
Lead, New York	8.90	8.90	9.15	9.85
Tin (Straits), New York	65.87½	65.00	65.00	56.62½
Antimony (Asiatic), N. Y.	16.00	16.00	16.00	17.00

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Pittsburgh

Large Line Pipe Inquiries Improve Production Prospects—Heavy Melting Steel Advances

PITTSBURGH, Aug. 31.—Steel business has increased again after the slight let-down of a week ago. Orders for the hot-rolled products have come up, while there has been a real spurt of buying in the lighter gages of sheets, no doubt prompted by the fact that the new base gage and gage extras mean substantially higher prices on sheets lighter than No. 24 gage. The new sheet card, which has been adopted by manufacturers controlling the major portion of the productive capacity of the United States, becomes effective tomorrow. It is believed that it will be generally adopted, although at the moment there are several producers who are not satisfied and are delaying adoption pending developments.

The market also is showing increased activity in pipe. Just when it began to look as though the mills were catching up with their obligations, an order was placed for 300 miles of 10-in. pipe line for shipment to South America, and a number of other sizable line pipe inquiries reached the market. If the line pipe business now in sight reaches the mills, they are virtually assured of a good winter operation, regardless of any seasonal recession in the demand for tubular goods in general. The common belief is that the industry cannot maintain its present rate of ingot production throughout the remainder of the year, but there are no expectations that the decline will be sufficient to prevent 1926 from making another new high record mark in steel production. Structural lettings are considered to be good for the season, and with the usual amount of standard-section rail business likely to come out within the next 45 days, to say nothing of the possibility of line pipe business and the requirements of the agricultural implement industry, the last quarter of the year promises to be a reasonably busy one.

There has been no let-down in steel works activities in this district. Ingot production still is holding at around 85 per cent of capacity, and with the orders on mill books, together with the production necessary to build up reserves of those products that are usually stocked, September operations should hold fairly close to the present gait. Much, of course, depends on how well the Chicago district does in the matter of fall and winter business, because it is no longer denied that unless mills in that district are fairly well filled up, it is hard for those in this district to get much business in what is now regarded as the center of steel consumption.

Prices generally are steady, with sheets actually firmer, but as yet the situation in cold-rolled strips has not improved. There seems to be a little more interest in pig iron than was the case recently, and efforts on the part of consumers to force prices lower have been unsuccessful. There is a good deal of firmness to the scrap market, with $18 a fair appraisal of the present value of heavy melting steel. Consuming markets all

around Pittsburgh are strong, and this condition is reflected back to the producing centers. Export demand for coal is a strong factor in keeping up coke prices, as Connellsville producers are getting so much better prices for coal than coke that they are not tempted to put on additional ovens.

Pig Iron.—Actual business in pig iron is still light, but inquiries that have come out in the past week have brought the amount of pending tonnage to about 10,000 tons of foundry iron. Producers, seeing the possibility of lighter production within the next 30 days through the blowing out of two furnaces now in blast, are disposed to take a stronger stand on prices. Inquiries which appeared about two weeks ago, one for 1500 tons of foundry iron and the other for 2000 tons, have not yet been closed, largely because producers have refused to consider less than $17.50, Valley furnace, for the base grade. There are fresh inquiries amounting to between 4000 and 5000 tons of foundry iron, and two 500-ton lots of malleable iron are being sought. One sale of 200 tons of No. 2 foundry to a Pittsburgh district melter has been made at $17.50, and that is still the ruling price, except on single carloads, which usually bring 50c. a ton more. New business in the steel-making grades is lacking. The Jones & Laughlin Steel Corporation put on the one idle furnace of its Elisa group on Aug. 25 and now has 11 of its 12 stacks in production. The Carnegie Steel Co. has taken off one of its Isabella furnaces. There are now 83 out of 127 furnaces producing in this and nearby districts. THE IRON AGE average prices from Valley furnaces for August were $17.50 for basic iron and $18 for Bessemer, as compared with $17.65 and $18.65 in July.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$17.50 to $18.00
Bessemer	18.00 to 19.00
Gray forge	17.00 to 17.50
No. 2 foundry	17.50 to 18.00
No. 3 foundry	17.00 to 17.50
Malleable	17.50 to 18.50
Low phosphorus, copper free	27.50

Ferroalloys.—Demand continues to reflect the fact that most consumers are covered against their requirements over the remainder of the year, and only occasional inquiries are received, which usually are for single carloads. Not much new business is expected until near the close of the year. Prices are unchanged; they are given on page 641.

Fluorspar.—Some domestic producers still are adhering firmly to $18 per net ton at mines for gravel fluorspar, but such business as has been done lately in this district has been at $17, and that price has been obtainable only because some consumers were willing to pay a higher price for domestic than foreign material. The latter has been selling at $17 per net ton, seaboard, or $20.50 delivered, Pittsburgh district.

Refractories.—Leading makers of silica brick have announced an advance of $3 per 1000, effective Sept. 1. The new quotations are $43 per 1000, f.o.b. Eastern plants, and $52 at Western works. The price of chrome brick also has been advanced by some makers, who now are quoting $50 per net ton, f.o.b. works. No change has been made in fire clay or magnesite brick, and recent prices continue on ground magnesite. Makers of silica brick are heavily obligated, due in no small measure to the fact that by-product coke oven construction was never greater than at present except in the war period. Prices on refractories are given on page 641.

Semi-Finished Steel.—Good specifications against sheet bar contracts but only moderately heavy releases against orders for billets and slabs are reported. Demand for sheets, though active, is not sufficient to force the mills that buy steel to supplement shipments on contracts from regular sources of supply. Open market transactions in all forms of steel are few, because so many mills have arrangements with supply sources. Prices are holding where they have been since late last year. They are given on page 641.

Wire Products.—The outlet for wire products is not expanding as is that for most other forms of finished steel; indeed, the tendency seems to be in the other direction, as is indicated by the fact that, with the steel industry as a whole operating 80 per cent of capacity or more, there is a wire plant engagement of from only 55 to 60 per cent and the average operation for the year to date has not been much more. But there is business enough to sustain that operation, and since there has not been the seasonal fluctuation in demand of other years, the situation is regarded as fairly satisfactory. Business is being spread out over the year instead of coming in heavy volume at the outset and then dropping sharply during the process of passing into consumption. Prices are steady and are given on page 639.

Rails and Track Supplies.—The local standard-section rail mill is now rolling and shipping against its portion of a recent order from the Norfolk & Western Railway, but strictly new business is light. The market is weaker on light rails. Those rolled from billets are no longer salable above $34 per gross ton, while on fair-sized lots as low as $33 has been done. Orders for accessories are moderate, as is usually the case at this time of year. Prices are given on page 639.

Tubular Goods.—The outlook for sustained operation of lap-welded pipe capacity at a high rate is brightened by increased interest in line pipe. The National Andean Corporation, a subsidiary of the International Petroleum Co., in turn a Canadian subsidiary of the Standard Oil Co. of New Jersey, has placed with the National Tube Co. 300 miles of 10-in. pipe for a line in Colombia, South America. The Empire Gas & Fuel Co., Bartlesville, Okla., is in the market for 22½ miles of 16-in. plain-end pipe, while there is an inquiry for 160 miles of 12¾-in. pipe from the

THE IRON AGE Composite Prices

Finished Steel

Aug. 31, 1926, 2.431c. Per Lb.

One week ago	2.431c.
One month ago	2.431c.
One year ago	2.396c.
10-year pre-war average	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 87 per cent of the United States output of finished steel.

	High		Low	
1926	2.453c.,	Jan. 5;	2.403c.,	May 18
1925	2.560c.,	Jan. 6;	2.396c.,	Aug. 18
1924	2.789c.,	Jan. 15;	2.460c.,	Oct. 14
1923	2.824c.,	April 24;	2.446c.,	Jan. 2

Pig Iron

Aug. 31, 1926, $19.46 Per Gross Ton

One week ago	$19.46
One month ago	19.46
One year ago	19.13
10-year pre-war average	15.72

Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

	High		Low	
1926	$21.54,	Jan. 5;	$19.46,	July 13
1925	22.50,	Jan. 13;	18.96,	July 7
1924	22.88,	Feb. 26;	19.21,	Nov. 3
1923	30.86,	March 20;	20.77,	Nov. 20

Mill Prices of Finished Iron and Steel Products

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills	2.00c. to 2.10c.
F.o.b. Chicago	2.10c.
Del'd Philadelphia	2.22c.
Del'd New York	2.34c.
Del'd Cleveland	2.19c.
F.o.b. Birmingham	2.15c. to 2.25c.
C.i.f. Pacific ports	2.35c.
F.o.b. San Francisco mills	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills	2.00c. to 2.10c.

Rail Steel

F.o.b. mill	1.80c. to 1.90c.
F.o.b. Chicago	2.00c.

Iron

Common iron, f.o.b. Chicago	2.00c.
Refined iron, f.o.b. P'gh mills	3.00c.
Common iron, del'd Philadelphia	2.22c.
Common iron, del'd New York	2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill	1.90c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c.
Del'd Philadelphia	2.22c.
Del'd New York	2.24c.
C.i.f. Pacific ports	2.30c.

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mill	2.00c. to 2.10c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.15c. to 2.25c.
Del'd Cleveland	2.19c.
Del'd Philadelphia	2.32c.
Del'd New York	2.34c.
C.i.f. Pacific ports	2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh	2.50c.
All gages, 6 in. and wider, P'gh	2.30c.
All gages, 6 in. and narrower, Chicago	2.60c.
All gages, wider than 6 in., Chicago	2.50c.
Cotton ties, f.o.b. Atlantic ports, per bundle of 45 lb.	$1.22
Cotton ties, f.o.b. Gulf ports, per bundle of 45 lb.	1.20

Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills	2.50c.
Bars, f.o.b. Chicago	2.50c.
Bars, Cleveland	2.55c.
Shafting, ground, f.o.b. mill	*2.70c. to 3.00c.
Strips, f.o.b. Pittsburgh mills	3.50c. to 3.60c.
Strips, f.o.b. Cleveland mills	3.40c. to 3.60c.
Strips, delivered Chicago	3.80c. to 3.90c.
Strips, f.o.b. Worcester mills	3.75c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails	$2.65
Galv'd nails, 1-in. and longer	4.65
Galv'd nails, shorter than 1 in.	4.90
Galvanized staples	3.35
Polished staples	3.10
Cement coated nails	2.65

	Base Per 100 Lb.
Bright plain wire, No. 9 gage	$2.50
Annealed fence wire	2.65
Spring wire	3.50
Galv'd wire, No. 9	3.10
Barbed wire, galv'd	3.35
Barbed wire, painted	3.10

Chicago district mill and delivered Chicago prices are $1 per ton above the foregoing. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant; Duluth, Minn., mill $2 a ton higher; Anderson, Ind., $1 higher.

Woven Wire Fence

	Base to Retailers Per Net Ton
F.o.b. Pittsburgh	$65.00
F.o.b. Cleveland	66.00
F.o.b. Anderson, Ind.	67.00
F.o.b. Chicago district mills	68.00
F.o.b. Duluth	63.00
F.o.b. Birmingham	63.00

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh	2.25c. to 2.30c.
Nos. 9 and 10, f.o.b. Ch'go dist. mill	2.40c.
Nos. 9 and 10, del'd Philadelphia	2.62c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh	3.10c. to 3.15c.
No. 28, f.o.b. Ch'go dist. mill	3.25c.
No. 28, del'd Philadelphia	3.42c. to 3.47c.

Galvanized

No. 28, f.o.b. Pittsburgh	4.20c. to 4.30c.
No. 28, f.o.b. Chicago dist. mill	4.40c.
No. 28, del'd Philadelphia	4.62c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	3.15c.
No. 28, f.o.b. Chicago dist. mill	3.25c.

Automobile Body Sheets

No. 22, f.o.b. Pittsburgh	4.30c.

Long Ternes

No. 28, 8-lb. coating, f.o.b. mill	4.65c.

Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills	$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.	5.60

Terne Plate

(*F.o.b. Morgantown or Pittsburgh*)
(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.40	20-lb. coating I.C.	$16.20
		25-lb. coating I.C.	17.90
8-lb. coating I.C.	11.70	30-lb. coating I.C.	19.45
15-lb. coating I.C.	14.85	40-lb. coating I.C.	21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers		Base Per 100 Lb.
2100*	(1½% Nickel, 0.10% to 0.20% Carbon)	$3.20 to $3.25
2300	(3½% Nickel)	4.40 to 4.50
2500	(5% Nickel)	5.50 to 5.65
3100	(Nickel Chromium)	3.40 to 3.50
3200	(Nickel Chromium)	5.00 to 5.25
3300	(Nickel Chromium)	7.00 to 7.25
3400	(Nickel Chromium)	6.25 to 6.50
5100	(Chromium Steel)	3.40 to 3.50
5200*	(Chromium Steel)	7.00 to 7.50
6100	(Chrom. Vanadium bars)	4.50
6100	(Chrom. Vanad. spring steel)	3.80
9250	(Silicon Manganese spring steel)	3.20 to 3.25
	Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)	4.10 to 4.20
	Nickel Chrome Vanadium (0.60 Nickel, 0.60 Chrom., 0.15 Vanad.)	4.20
	Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)	4.25 to 4.35
	Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)	3.40 to 3.50
	Chromium Molybdenum spring steel (1 — 1.25 Chrom., 0.30 — 0.50 Molybdenum)	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

	Per Gross Ton
Standard, f.o.b. mill	$43.00
Light (from billets), f.o.b. mill	$33.00 to 34.00
Light (from rail steel), f.o.b. mill	31.00 to 32.00
Light (from billets), f.o.b. Ch'go mill	36.00 to 37.00

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, ⅜ in. and larger	$2.80 to $3.00
Spikes, ½ in. and smaller	2.90 to 3.35
Spikes, boat and barge	3.35
Track bolts, all sizes	3.90 to 4.50
Tie plates, steel	2.25 to 2.35
Angle bars	2.75

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	10½	⅛ to ⅜	+11	+30
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	12
1 to 3	62	50½			

Lap Weld

2	55	42½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	25	18
9 and 10	54	41½	7 to 12	26	11
11 and 12	58	46½			

Butt Weld, extra strong, plain ends

⅛	41	24½	⅛ to ⅜	+19	+54
¼ to ⅜	47	30½	½	21	7
½	53	42½	¾	28	13
¾	58	47½	1 to 1½	30	14
1 to 1½	60	49½			
2 to 3	61	50½			

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel		*Charcoal Iron*	
2 to 2¼ in.	27	1½ in.	+16
2½ to 3½ in.	37	1¾ to 1⅞ in.	+ 9
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3½ to 4½ in.	— 9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 tens to 2 tens and 1 five on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ to 1½ in.	52	3½ to 3½ in.	47
1¾ in.	50	4 in.	50
2 to 2¼ in.	51	4½, 5 and 6 in.	48
2½ to 2¾ in.	39		

Hot Rolled

2 and 2¼ in.	34	3½ and 3½ in.	50
2½ and 2¾ in.	42	4 in.	55
3 in.	46	4½, 5 and 6 in.	45

Less carloads, 4 points less. Add $3 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.30%, base	50
Carbon, 0.30% to 0.40%, base	50

Plus differentials for lengths over 15 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

Mexican Seaboard Oil Co. for a gas line from Webb County, Tex., through the Rio Grande Valley to Brownsville. With at least two companies interested in a gas pipe line from Amarillo, Tex., to Kansas City, calling for 450 miles of 20-in. pipe, action is expected unless financial considerations interfere. Meanwhile, there is a sustained demand for oil country goods, and while the pressure for shipments is not quite so heavy as recently, mills report a full order book for September and are not promising delivery on new business before the first week in October. The situation is comparatively easy as to supplies in standard weight pipe. One large maker of lap-welded boiler tubes has announced a minimum of 7 fives beyond the card on carload lots and 6 fives on less than carloads; other makers are going along with that change. Discounts are given on page 639.

Steel and Iron Bars.—Current business in steel bars is moderate, but specifications against contracts, which a week ago showed some tendency to lag, have been good again in the past week. The price situation is without change. Iron bars are rather slow, and only on small lots is it possible to secure 3c., base, for refined iron grade. Prices are given on page 639.

Sheets.—Announcement of a new base gage and of new gage differentials on black and galvanized sheets by a large majority of the mills, effective from Sept. 1, is the outstanding development of the week. With the change, which establishes No. 24 gage as the base gage on these grades, come new base prices of 3c., Pittsburgh, and 3.10c., Chicago mills, on black and 3.85c., Pittsburgh, and 3.95c., Chicago, on galvanized. The new card lifts the prices of gages lighter than No. 24, but reduces those on the heavier gages, the new alinement being more in harmony with producing costs than in the former schedules. The effect of the announcement has been to stimulate heavily the demand for the light gages before the change becomes effective and not a little of the business has been between mills, one company having bought 10,000 tons from other producers and two other mills having purchased almost as much. No trouble lately has been experienced by mills in this area in getting 3.15c., base (No. 28 gage) Pittsburgh, for black sheets and 4.30c., base Pittsburgh, for galvanized, and the market no longer appears quotable below those prices. Under the new base and gage differentials No. 28 gage black sheets go to 3.25c., and galvanized of that gage to 4.35c. There has been no change in the blue annealed sheet base gage and differentials, while tin mill black sheets, automobile body sheets and electrical sheets also remain at their present base gages and extras. Automobile sheets have been advanced to 4.30c., base Pittsburgh, for No. 22 gage. Mills have a full month's business on their books, and mill operations are increasing with the average now fully 85 per cent of capacity.

Tin Plate.—Container manufacturers still are taking tin plate freely, but there is not quite the pressure for deliveries there was recently, as the extra requirements of packers' can sizes appear to have been satisfied. The mills are still busy, and there is enough business in sight to keep up rolling schedules through September and into October. Mills are fairly well rid of stock items.

Cold-Finished Steel Bars and Shafting.—Demand holds up remarkably well, but that perhaps is only natural in view of the fact that production of automobiles is well maintained. Moreover, parts makers have not been carrying large stocks and find it necessary to make frequent purchases. Prices are steady, but suggestions of an advance are taken with reserve, since there is not much sign of higher prices for hot-rolled bars.

Hot-Rolled Flats.—Demand for hoops, bands and strips is constant, although for small individual lots, and prices are very steady. The automotive industry is a heavy buying factor in these lines, and as it is producing well and not carrying large stocks, frequent purchases are necessary. Prices are given on page 639.

Cold-Rolled Strips.—The market appears to be somewhat steadier, although not quotably higher on fender stock, but the market generally is still rather dull, with prices favoring buyers. The quotable market is 3.50c. to 3.60c., base Pittsburgh, with tubing stock at the usual discount of $5 per ton. Most of the business is still in small lots.

Structural Steel.—There has been quickening in the demand for large structural shapes due to some fairly large bookings by local fabricating shops. Business, however, is heavier in specifications than on strictly new work. Current demands bulk fairly large, however, as there are a good many small structural jobs calling for very early deliveries. The matter of deliveries is a serious one with fabricating companies, as on most projects that come up for figures the investors want delivery to begin very much earlier than it is possible for the shops to promise. While there has been a subsidence of price competition, there has been an increase in competition based on delivery promises. Plain material prices are given on page 639.

Plates.—Steel for 2000 cars recently placed for repair by the Pennsylvania Railroad with the Ralston Steel Car Co., amounting to about 15,000 tons, is likely to come to Pittsburgh mills. This will be helpful in view of the fact that there has not lately been a very heavy demand for plates except that provided by the pipe mills. The market is holding at 1.90c., base, Pittsburgh.

Bolts, Nuts and Rivets.—There is the same steady demand for these products that has prevailed for several months. Prices are steady except possibly on large car rivets, which are usually bought in large quantities. Prices and discounts are given on page 639.

Coke and Coal.—The market is showing firmness for spot tonnages of furnace coke, sales of which have been made at $3.15 to $3.25, about 15c. a ton higher than last week. The demand can hardly be called large, but it is running ahead of the supply, due to the fact that Connellsville operators are selling a good deal of coal for export and are not disposed to put on ovens while the demand for coal holds up and prices remain more profitable than can be realized from coke. There is also a seasonal shortage of men in the Connellsville district which checks putting on coking capacity. The supply of spot foundry coke is ample and prices are unchanged. The Central Furnace Co., Massillon, Ohio, has not yet closed for the coke it recently inquired for. The coal market is featured by good export demand and producers are getting $2 per net ton at mines for mine run and gas coal and $2.25 for lump grade.

Old Material.—Heavy melting steel is quotable in this market at from $17.50 to $18.25. At one consuming point to which dealers had shipped without orders it was necessary for them to go to $17.50 to have the material taken in. But against that there was a straight sale of a round lot to an Ohio River steel

(*Concluded on page 656*)

Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Tank plates	3.00c.
Structural shapes	3.00c.
Soft steel bars and small shapes	2.90c.
Reinforced steel bars	2.90c.
Black sheets (No. 28 gage), 25 or more bundles	4.00c.
Galvanized sheets (No. 28 gage), 25 or more bundles	5.00c.
Blue annealed sheets (No. 10 gage), 25 or more sheets	3.55c.
Cold-finished shafting and screw stock—	
Rounds and hexagons	3.60c.
Squares and flats	4.10c.
Bands	3.60c.
Spikes, large	3.30c.
Small	3.80c. to 5.25c.
Boat	3.80c.
Bolts, track	4.90c.
Wire, black soft annealed, base per 100 lb.	$3.00
Wire, galvanized soft, base per 100 lb.	3.00
Common wire nails, per keg	3.00
Cement coated nails	3.05

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Mill Prices of Semi-Finished Steel

F. o. b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rolling, 4-in. and over	$35.00
Rolling, 2-in. and smaller	36.00
Forging, ordinary	40.00
Forging, guaranteed	45.00

Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer	$36.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger	$35.00
6 in. x 2 in. and smaller	36.00

Skelp

	Per Lb.
Grooved	1.90c.
Sheared	1.90c.
Universal	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base	$45.00
Screw stock	$5.00 per ton over base
Carbon 0.20% to 0.40%	3.00 per ton over base
Carbon 0.41% to 0.55%	5.00 per ton over base
Carbon 0.56% to 0.75%	7.50 per ton over base
Carbon over 0.75%	10.00 per ton over base
Acid	15.00 per ton over base

*Chicago mill base is $46. Cleveland mill base, $45.

Prices of Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron	$4.55
Old range non-Bessemer, 51.50% iron	4.40
Mesabi Bessemer, 51.50% iron	4.40
Mesabi non-Bessemer, 51.50% iron	4.25
High phosphorus, 51.50% iron	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66% iron	9.50c.
Manganese ore, washed, 51% manganese, from the Caucasus	40c. to 42c.
Manganese ore, high grade, nominal	35c. to 44c.
Tungsten ore, high grade, per unit, in 60% concentrates	$11.75 to $12.50
	Per Ton
Chrome ore, Indian basic, 48% Cr_2O_3, crude, c.i.f. Atlantic seaboard	$22.50
	Per Lb.
Molybdenum ore, 85% concentrates of MoS_2, delivered	50c. to 55c.

Coke

	Per Net Ton
Furnace, f.o.b. Connellsville prompt	$3.15 to $3.25
Foundry, f.o.b. Connellsville prompt	4.00 to 4.50
Foundry, by-product, Ch'go ovens	9.75
Foundry, by-product, New England, del'd	12.00
Foundry, by-product, Newark or Jersey City, delivered	9.59 to 10.77
Foundry, Birmingham	5.50 to 6.00
Foundry, by-product, St. Louis or Granite City	10.00

Coal

	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines	$1.40 to $1.75
Mine run coking coal, f.o.b. W. Pa. mines	1.50 to 1.75
Mine run gas coal, f.o.b. Pa. mines	1.85 to 2.00
Steam slack, f.o.b. W. Pa. mines	1.10 to 1.20
Gas slack, f.o.b. W. Pa. mines	1.20 to 1.30

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd.	$88.00 to $95.00
Foreign, 80%, Atlantic or Gulf port, duty paid	88.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	$32.00 to $34.00
Domestic, 16 to 19%	31.00 to 33.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50%	$85.00 to $87.50
75%	145.00 to 150.00

Per Gross Ton Furnace		*Per Gross Ton Furnace*	
10%	$35.00	12%	$39.00
11%	37.00	14 to 16%	$45 to 46.00

Bessemer Ferrosilicon

F.o.b. Jackson County, Ohio, Furnace

Per Gross Ton		*Per Gross Ton*	
10%	$33.00	12%	$37.00
11%	35.00		

Silvery Iron

F.o.b. Jackson County, Ohio, Furnace

Per Gross Ton		*Per Gross Ton*	
6%	$25.50	10%	$31.00
7%	26.50	11%	33.00
8%	27.50	12%	35.00
9%	29.00		

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd	$1.05 to $1.20
Ferrochromium, 4% carbon and up, 60 to 70% Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium, f.o.b. furnace	$3.25 to $4.00
Ferrocarbontitanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads	$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton	$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per net ton	$123.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines	$17.00 to $18.00
No. 2 lump, Illinois and Kentucky mines	$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid,	$17.00 to $17.50
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines	$32.50

Fire Clay

	Per 1000 f.o.b. Works	
	High Duty	Moderate Duty
Pennsylvania	$40.00 to $43.00	$38.00 to $40.00
Maryland	43.00 to 46.00	38.00 to 40.00
New Jersey	55.00 to 75.00	
Ohio	40.00 to 43.00	38.00 to 40.00
Kentucky	40.00 to 43.00	38.00 to 40.00
Illinois	40.00 to 43.00	35.00 to 36.00
Missouri	40.00 to 43.00	35.00 to 36.00
Ground fire clay, per ton	6.50 to	7.50

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	$40.00 to $43.00
Chicago	49.00 to 52.00
Birmingham	30.00
Silica clay, per ton	$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.	$45.00
Grain magnesite, f.ob. Baltimore and Chester, Pa.	40.00

Chrome Brick

	Per Net Ton
Standard size	$45.00 to $50.00

Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(Less-than-Carload Lots)

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads	60 and 10
Machine bolts, all sizes, cut threads	50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads	50, 10 and 10
Carriage bolts, cut threads, all sizes	50 and 10
Eagle carriage bolts	65 and 10
Lag bolts	60, 10 and 10
Plow bolts, Nos. 3 and 7 heads	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, ⅜ x 4 in.	45, 10 and 5
Larger and longer sizes	45, 10 and 5
Bolt ends with hot-pressed nuts	50, 10 and 10
Bolt ends with cold-pressed nuts	45, 10 and 5
Hot-pressed nuts, blank and tapped, square,	4.00c. per lb. off list
Hot-pressed nuts, blank or tapped, hexagons,	4.40c. per lb. off list
C.p.c. and t. square or hex. nuts, blank or tapped	4.10c. per lb. off list
Washers*	6.50c. to 6.25c. per lb. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent more than above for car lots. On hot-pressed and cold-punched nuts the discount is 25c. more per 100 lb. than quoted above for car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagon nuts:	
⅞ in. and smaller, U. S. S.	80, 10 and 5
1 in. and larger, U. S. S.	75, 10 and 5
Small sizes, S. A. E.	80, 10, 10 and 5
S. A. E., ⅝ in. and larger	75, 10, 10 and 5
Stove bolts in packages	80 and 10
Stove bolts in bulk	80, 10 and 2½
Tire bolts	60 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

(To jobbers and consumers in large quantities)

	Per 100 Net S.A.E.	Per 100 Net U.S.S.		Per 100 Net S.A.E.	Per 100 Net U.S.S.
¼-in.	$0.44	$0.44	⅞-in.	$2.25	$2.40
5/16-in.	0.515	0.515	1-in.	2.60	3.60
⅜-in.	0.62	0.66	1-in.	5.45	5.80
7/16-in.	0.79	0.90	1⅛-in.	8.90	8.90
½-in.	1.01	1.05	1¼-in.	12.60	13.10
9/16-in.	1.36	1.42	1⅜-in.	18.25	18.25
⅝-in.	1.70	1.78	1½-in.	21.80	21.80

Larger sizes.—Prices on application.

Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh	$2.50 to $2.60
F.o.b. Cleveland	2.70
F.o.b. Chicago	$2.60 to 2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh	70 and 10
F.o.b. Cleveland	70, 10 and 5 to 70 and 10
F.o.b. Chicago	70, 10 and 5 to 70 and 10

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws	80 and 10
Milled standard set screws, case hardened,	80 and 5
Milled headless set screws, cut thread	80
Upset hex. head cap screws, U. S. S. thread,	80, 10 and 10
Upset hex. cap screws, S.A.E. thread,	80, 10 and 10
Upset set screws	80, 10 and 5
Milled studs	70 and 5

Chicago

Heaviest Summer Shipments of Steel on Record—Lake Movement of Iron

CHICAGO, Aug. 31.—Shipments from Chicago district mills during the three summer months of June, July and August were fully 50 per cent heavier than for any like period in the history of the local steel industry. New business throughout that period kept up at a steady rate, and production averaged not less than 85 per cent of ingot capacity. Stocks in the hands of consumers are small, and specifications are in close conformity with consumptive demand. For the most part, buyers have been able to anticipate requirements with a fair degree of accuracy, and mills are having little difficulty in meeting demands as to delivery dates. The price situation is steady and many users are ready to contract for the fourth quarter, for which mills opened books last week. As August closes, it develops that specifications for the month were equal to those of July, and that new business lagged by only a few tons. For the past week both new buying and specifications show a large gain compared with the previous seven days.

The Inland Steel Co., pursuing its policy of electrification, will close down its 24-in. bar mill and a blooming mill Sept. 6 for a period of two weeks.

Railroad purchases this week are confined to 10,000 tons of rails in miscellaneous lots and a moderate tonnage of track supplies. A car builder estimates that up to Aug. 31 of this year 33,500 freight cars have been placed by the Class 1 railroads of the country. This does not include cars ordered by tank car companies nor cars built in railroad shops. For the same period of 1925, 25,360 cars had been placed. During the whole of last year close to 66,000 freight cars were ordered by railroads from the car builders.

Pig Iron.—August shipments of Northern iron are fully 20 per cent ahead of those for July, and sales for the month just closed were satisfactory. Shipments from the Duluth merchant furnace are in good volume, and stocks at Mayville are being reduced faster than was expected. The melt in this district is heavy, and there is no evidence that buyers are making an effort to build up stocks. This condition is satisfactory to producers, who are meeting the demands of the trade and are operating in close conformity with current requirements. A few fourth quarter contracts were closed during the week, and there is some interest in first quarter iron by users who are making cataloged products. Silvery is in moderate demand for shipment over the remainder of the year. One sizable order for Southern iron has been placed at $21, base Birmingham, for delivery during the next four months. A shipment of Northern iron, totaling 2500 tons, was docked at Chicago, Aug. 30. This was consigned to a local dealer and will be used to cover contracts made earlier in the year.

Quotations on Northern foundry, high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards:

Northern No. 2 foundry, sil. 1.75 to 2.25	$21.00
Northern No. 1 foundry, sil. 2.25 to 2.75	21.50
Malleable, not over 2.25 sil.	21.00
High phosphorus	21.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	27.01
Southern No. 2 (barge and rail)	25.18
Low phos., sil. 1 to 2 per cent, copper free	$29.50 to 30.00
Silvery, sil. 8 per cent	32.29
Bessemer ferrosilicon, 14 to 15 per cent	45.79

Sheets.—The Inland Steel Co. announces that it will follow the action of the Youngstown Sheet & Tube Co. in adopting new bases and differential schedules on sheets, effective Sept. 1. Other producers are expected to take the same course. The base gage for galvanized and black sheets will be No. 24 instead of No. 28, while No. 10 gage will remain the base for blue annealed sheets. Fourth quarter books have not been opened. The demand for sheets continues to grow and deliveries now are averaging seven weeks on galvanized and black and 10 weeks on blue annealed.

Chicago delivered prices from mill are 3.30c. for No. 28 black; 2.45c. for No. 10 blue annealed; 4.45c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Ferroalloys.—The market is quiet, and prices are unchanged. Sales are of carlot proportions and are for delivery over the next few weeks.

We quote 80 per cent ferromanganese, $95.56, delivered Chicago; 50 per cent ferrosilicon, $85, delivered; spiegeleisen, 18 to 22 per cent, $41.56, delivered Chicago.

Plates.—The demand for plates is steady, particularly from makers of oil storage and water tanks. Tank manufacturers this week have placed 1200 tons of new business, and specifications from them against contracts recently placed total close to 6000 tons. Programs of the oil companies are heavy, and both the construction and erection of tanks are being rushed. Railroad equipment business continues to lag. Revised specifications for the 500 cars in the Chicago Great Western inquiry have not yet been issued, and the 2000 refrigerator cars for the American Refrigerator Transit Co. have not been placed, although the award may be made this week. Local makers of plates have opened their books for fourth quarter and are quoting 2.10c., base Chicago.

The mill quotation on plates is 2.10c. per lb., base, Chicago.

Hot-Rolled Strip.—Specifications against contracts are heavy. Prices remain at 2.50c., Chicago, for gages wider than 6 in. and 2.60c. for narrower material.

Billets.—Small billets are firm at $35 per gross ton, and bookings this week exceed 4000 tons.

Structural Material.—Fabricating plants in the Chicago district are comfortably booked for about two months, and a steady volume of fresh inquiry is appearing from week to week. The fact that shops can now see several months of steady work ahead of them has resulted in strengthening bids on fabricating work, and there is less evidence of the sharp competition which existed earlier in the summer. Insofar as the demand for structural steel is concerned, there is little recession in the rate of building construction in this district. Three projects in Chicago will require a total of 23,000 tons. These are the Medinah Athletic Club, 10,000 tons; the Fur Exchange Building, 8000 tons, and a building at Clark and Madison Streets, which will require about 5000 tons. An addition to a Chicago industrial plant will take 1500 tons. The labor situation here is being watched closely, since the unions have called a strike at several buildings because of the employment of labor under the Landis award. Close to 40 per cent of building work here is carried on under the award. Prices on plain material are unchanged.

The mill quotation on plain material is 2.10c. per lb. base, Chicago.

Bolts, Nuts and Rivets.—Manufacturers of stove bolts announce an advance in price of 5 per cent to take effect at once. The new discounts are 80 and 10 per cent off list in packages and 80, 10 and 2½ off in bulk. The general price situation is steady, and fourth quarter contracts, which will be prepared within the week, will be written at current quotations. Specifications for August are well ahead of those for July, and makers believe that specifications will be larger in proportion to contracts for the third quarter than for the second quarter.

Bars.—New buying of soft steel bars is heavier and specifications are in greater volume than at any time during the month. Specifications for August were about equal to those for July, thus bringing to a close one of the most active summer periods in soft steel bars that Western mills have ever experienced. Fourth quarter books are open, with the market unchanged at 2.10c., Chicago. Makers of cold-drawn products are

specifying liberally and manufacturers of farm implements are taking larger tonnages as their busy fall season approaches. Although there still remains one month of the third quarter, mills are finding that a number of their customers are overspecifying their contracts. The demand for alloy steel bars is steady, with prices unchanged. Chicago district makers are operating at close to capacity. This week has been rather quiet in the iron bar market. New buying is light, and specifications are only in moderate volume. The demand for rail steel bars shows no abatement. Specifications are equal to shipments, and figures now available show that business in August was slightly ahead of that in July. Mills do not expect to open fourth quarter books for a week or 10 days. Deliveries are averaging three to four weeks, and the ruling price remains at 2c., Chicago. One maker continues to run on single turn, and the Chicago Heights plant of the Inland Steel Co. resumed operation Aug. 30 after having been down one week for a change from steam to electric drive.

Mill prices per lb. are: Mild steel bars, 2.10c.; base, Chicago; common bar iron, 2c., base, Chicago; rail steel bars, 2c., base, Chicago.

Rails and Track Supplies.—Several miscellaneous rail orders placed during the week total 8000 tons. No large inquiries have appeared, but railroad budgets covering fall rail purchases are believed to be well under way. Transactions in track supplies are light and include sales of 1000 tons of steel tie plates, 900 tons of rail joints and 9000 kegs of spikes. Steel tie plates are steady at $2.35, base, per 100 lb., and iron tie plates are quoted at $2.25. The light rail market is quiet.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, $36 to $38 per gross ton, f.o.b. maker's mill.

Standard railroad spikes, 2.90c. per lb. mill; track bolts with square nuts, 3.90c. mill; steel tie plates, 2.35c. mill; angle bars, 2.75c. mill.

Cast Iron Pipe.—A number of municipalities have come forward to place contracts for pipe which must go into the ground before the heavy frosts. The smaller cities are in the market, and several contracts have been placed this week by private buyers. Prices are steady at $40 to $42, Birmingham, for 6 in. and larger sizes. Most business is being taken at about $42, but makers are willing to go below this price when attractive tonnages will help balance production schedules. Shipments are keeping pace with output, and the average delivery for the more common sizes is approximately 60 days. Detroit will close Sept. 3 on 2200 tons of 8-in. Class B, 2400 tons of 12-in. Class C, and 1900 tons of 8-in. Class C. Chicago will close Sept. 7 on 770 tons of 6 and 8-in. Class B pipe and 100 tons of 3 to 24-in. fittings. Wyandotte, Mich., will receive bids on 4200 tons of 6 to 30-in. Classes B and C, and Grayville, Ill., will close Sept. 6 on 130 tons of 4-in. B. Tenders will be received up to Sept. 7 by Highland Park, Ill., on 150 tons of 12-in. Class B pipe. Milwaukee has placed 500 tons of 8-in. Class C with the Glamorgan Pipe & Foundry Co.

We quote per net ton, delivered, Chicago, as follows: Water pipe, 4-in., $52.20 to $54.20; 6-in. and over, $48.20 to $50.20; Class A and gas pipe, $4 extra.

Old Material.—Transactions in scrap are light, and the market gives no evidence of turning one way or the other. No sales to consumers are reported in heavy melting steel, although dealers here and there are trading in this grade at $14.75. Dealers still seem to be of the opinion that the market will strengthen, but they are having little success in getting buyers to take that point of view. Shipments of railroad scrap are heavy. That dealers are willing to pay top prices for railroad material is shown by the fact that last week steel angle bars on the Burlington list brought $17.25 per gross ton, delivered, whereas the best price obtainable from users is $16.75. The price of cast iron wheels lacks strength, and 500 tons was sold to a user during the week at $15.50 per gross ton, delivered. Rerolling rails are in greater demand, and users of cast iron borings and short shoveling turnings are paying 50c. a ton above the market of a week ago. Country dealers throughout this territory are carrying heavy stocks, particularly in the steel grades, this being largely the result of close inspection at the mills and their insistence upon railroad scrap or its equivalent. There is a tendency also for stocks of the cheaper grades to accumulate in the yards of the larger Chicago dealers. Cast grades, such as are used by the smaller foundries, are in fair demand, and there is good inquiry this week for malleable scrap from Milwaukee users.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items, except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

Per Gross Ton	
Heavy melting steel	$14.00 to $14.50
Frogs, switches and guards, cut apart, and miscellaneous rails	16.00 to 16.50
Shoveling steel	14.00 to 14.50
Hydraulic compressed sheets	12.50 to 13.00
Drop forge flashings	9.50 to 10.00
Forged cast and rolled steel car wheels	18.00 to 18.50
Railroad tires, charging box size	18.50 to 19.00
Railroad leaf springs, cut apart	18.50 to 19.00
Steel couplers and knuckles	17.50 to 18.00
Coil springs	18.50 to 19.00
Low phosphorus punchings	17.00 to 17.50
Axle turnings, foundry grade	14.50 to 15.00
Axle turnings, blast fur. grade	12.50 to 13.00
Relaying rails, 56 to 60 lb.	25.50 to 26.50
Relaying rails, 65 lb. and heavier	26.00 to 31.00
Rerolling rails	17.50 to 18.00
Steel rails, less than 3 ft.	17.50 to 18.00
Iron rails	14.50 to 15.00
Cast iron borings	12.00 to 12.50
Short shoveling turnings	12.00 to 12.50
Machine shop turnings	7.50 to 8.00
Railroad malleable	17.75 to 18.25
Agricultural malleable	15.50 to 16.00
Angle bars, steel	16.25 to 16.75
Cast iron car wheels	15.50 to 16.00
Per Net Ton	
No. 1 machinery cast	17.00 to 17.50
No. 1 railroad cast	16.25 to 16.75
No. 1 agricultural cast	16.25 to 16.75
Stove plate	14.50 to 15.00
Grate bars	14.25 to 14.75
Brake shoes	13.75 to 14.25
Iron angle and splice bars	14.00 to 14.50
Iron arch bars and transoms	20.00 to 20.50
Iron car axles	24.00 to 24.50
Steel car axles	17.50 to 18.00
No. 1 railroad wrought	13.50 to 14.00
No. 2 railroad wrought	12.50 to 13.00
No. 1 busheling	11.50 to 12.00
No. 2 busheling	7.50 to 8.00
Locomotive tires, smooth	17.00 to 17.50
Pipes and flues	10.00 to 10.50

Reinforcing Bars.—Dealers are making a strong effort to advance the price of billet steel reinforcing bars, but fresh awards are light and those which have been taken are largely on quotations submitted within the past few weeks when prices were predominantly weak. Fresh quotations are said to be at 2.60c., Chicago warehouse. The local market is somewhat top-heavy when business taken is compared with inquiry.

(*Concluded on page 652*)

Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes	3.10c.
Mild steel bars	3.00c.
Reinforcing bars, billet steel	3.25c. to 2.60c.
Cold-finished steel bars and shafting—	
Rounds and hexagons	3.60c.
Flats and squares	4.10c.
Hoops	4.15c.
Bands	3.65c.
No. 28 black sheets	4.10c.
No. 10 blue annealed sheets	3.50c.
No. 28 galvanized sheets	5.25c.
Standard railroad spikes	3.55c.
Track bolts	4.55c.
Structural rivets	3.50c.
Boiler rivets	3.70c.
	Per Cent Off List
Machine bolts	50 and 5
Carriage bolts	47½
Coach or lag screws	55 and 5
Hot-pressed nuts, square, tapped or blank	3.25c. off per lb.
Hot-pressed nuts, hexagons, tapped or blank	3.75c. off per lb.
No. 8 black annealed wire, per 100 lb.	$3.30
Common wire nails, base, per keg	3.05
Cement coated nails, base, per keg	3.05

Cleveland

Change in Gage and Extras Stimulates Buying of Lighter Sheets

CLEVELAND, Aug. 31.—Mills are still getting a large flow of small orders, mostly in specifications against contracts. The volume with producers in this territory and with local sales offices during August was about the same as in July. An outstanding feature of the market during August was the increased demand for sheets, as a result of which the sheet mills will start September with well filled order books. Mills rolling other products have about the same tonnage on their books as a month ago. Some orders for good lots of sheets were placed by two or three Detroit automobile companies the past week. Recent buying of steel by this industry has been for the most part for October shipment, but some of the motor car builders are now figuring on fourth quarter contracts for sheets and cold-rolled strip steel.

The Biggs Boiler Works Co., Akron, Ohio, has taken a water pipe line for Saginaw, Mich., requiring 2000 tons of plates, which will be furnished by a Pittsburgh district mill. Providence, R. I., which was figuring on a pipe line requiring 6000 tons of plates, has decided to use concrete construction instead. Carlot orders of plates are plentiful, and mills are getting a good volume of specifications against structural contracts, although not much new building work is coming out. The Stange Construction Co. has been awarded a bridge at Girard, Ohio, requiring 400 tons of structural material and 800 tons of reinforcing bars. The market is firm at 2c., Pittsburgh, for steel bars and structural material and at 1.90c. for plates.

The new base and differentials on black and galvanized sheets have stimulated the demand for black sheets in the lighter gages, since consumers desired to get under cover before the higher prices for lighter gages under the new differentials became effective. The American Sheet & Tin Plate Co. will place the new base and differentials in effect Sept. 1, and most of the independent mills have already indicated that they will adopt the changes shortly.

Pig Iron.—With some business still coming out in fourth quarter contracts and in spot shipment orders, sales are holding up to about recent volume. Most buyers are covered at least into the fourth quarter. Shipments continue rather heavy, and prices are holding at about recent levels. Cleveland producers are holding to $18, furnace, for foundry and malleable iron for out-of-town shipment, but are losing some business at that price. A Lake furnace has taken several small-lot orders at $18 for shipment to points having equal freight rates from the Valley district. This is being cited as proof of the contention of some producers that $17.50, furnace, is being quoted by Valley producers only for shipment to points where they are at a freight disadvantage. Apparently less effort is being made than heretofore by Valley furnaces to get more than $18. One producer who has been holding for $18.50 took several small-lot orders during the week at $18. In Cleveland the market is unchanged at $19, furnace, for local delivery, but this might be shaded to shut out Valley iron, which at $17.50 would be delivered in Cleveland at 25c. a ton under the regular local price. Lake producers are holding to $19, furnace, for shipment in western Ohio and Indiana and to $19.50 for Michigan deliveries.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6.01 from Birmingham:

Basic, Valley furnace	$17.50
N'th'n No. 2 fdy., sil. 1.75 to 2.25	19.50
Southern fdy., sil. 1.75 to 2.25	27.01
Malleable	19.50
Ohio silvery, 8 per cent	30.52
Standard low phos., Valley furnace	27.50

Semi-Finished Steel.—Specifications for sheet bars continue heavy, and there is some new business in small lots. The McKinney Steel Co. has added another open-hearth furnace, now operating 12 out of 14. The market is firm at $36, Cleveland and Youngstown, for sheet bars and $35 for slabs and large billets.

Sheets.—Some of the sheet mills have purchased round lots of black sheets for galvanizing, and this demand has tended to stiffen the market on this grade so that a price below 3.10c. [No. 28 gage] seems to have disappeared. Several mills have advanced automobile body sheets to 4.30c. for the fourth quarter, and it is expected that all other producers will fall in line. Fender stock is firmer, now holding to 4.80c. for No. 20 gage. Galvanized sheets still lack firmness, with quotations of 4.20c. to 4.30c. [No. 28 gage], and blue annealed sheets have not got above the minimum base of 2.25c., although 2.30c. is more common. Most mills are filled up for 30 days or longer.

The No. 24 gage base and new price differentials on black and galvanized sheets, announced by the Youngstown Sheet & Tube Co., which several other mills have already stated they will adopt, will work to the advantage of the producers. With the old base and differentials, producers consider heavy-gage business more profitable than light-gage orders. The new base and differentials will be to the advantage of the steel barrel manufacturers and other consumers of black sheets in Nos. 18 to 20 gage. Using the new base with a 3c., Pittsburgh, price, material in these gages will bring 2.80c., as compared with 2.95c. when using the present base and the 3.15c. price. On the other hand, the new base and differentials will be to the disadvantage of users of gages lighter than No. 24, including plants that buy sheets for galvanizing, for with a 3c. base, No. 28 gage will be 3.25c., or $2 a ton higher than at present with the 3.15c. No. 28 gage base.

Fluorspar.—The offering of French and German gravel fluorspar at close to $17, seaboard, which has led to concessions on the domestic material in the Pittsburgh territory, has not yet resulted in any price shading on domestic spar in this market. A Cleveland mill during the week purchased 500 tons of domestic spar at the regular price of $18, although foreign material can be delivered here at about $2 a ton lower than the delivered price of the domestic spar. A Chicago consumer has also placed 500 tons at $18, mines. A Buffalo mill bought a small lot of foreign spar at $17.20, seaboard. So far Cleveland sellers show no disposition to shade prices to meet foreign competition. Some consumers appear willing to pay more for the domestic material, because they feel that deliveries on this will be more dependable than on the foreign spar.

Bolts, Nuts and Rivets.—The demand for bolts and nuts continues good, specifications during August being as heavy as in July. There is very little new business, as practically all consumers are under contract. There is still some irregularity in small rivets.

Coke.—The demand for heating coke has become more active, with quotations unchanged at $3 to $3.50, Connellsville. There is very little new demand for foundry grades, as consumers generally are under contract. The price of Ashland foundry coke has been reestablished at $6.50, base Connellsville, for September. Standard Connellsville foundry coke is unchanged at $4 to $5.25, ovens. Ohio by-product foundry coke is quoted at $7.50, Painesville.

Strip Steel.—While cold-rolled strip steel is commonly quoted at 3.50c. to 3.60c., Cleveland and Pitts-

Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes	3.00c.
Mild steel bars	3.00c.
Cold-finished rounds and hexagons	3.90c.
Cold-finished flats and squares	4.40c.
Hoops and bands	3.65c.
No. 28 black sheets	3.81c. to 3.85c.
No. 10 blue annealed sheets	3.15c.
No. 28 galvanized sheets	4.70c. to 5.00c.
No. 9 annealed wire, per 100 lb.	$3.00
No. 9 galvanized wire, per 100 lb.	3.45
Common wire nails, base, per keg	3.00

burgh, 3.40c. seems to more commonly represent the market on round lots. Mills are not filled up very far ahead, and competition for business is keen. Hot-rolled strip is firm at regular quotations.

Reinforcing Bars.—Several good-sized lots are still pending, but inquiry was light the past week. Competition locally is very keen, and mills holding to 1.80c., mill, for rail steel bars are able to take only small lots at that price.

Warehouse Business.—Jobbers' sales of steel bars continue quite heavy, and other products are moving well. Some shading on steel bars is reported in the northern Ohio territory, but locally the warehouse price is being maintained. There is still some irregularity in sheet prices. One distributer has shaded blue annealed sheets to 3.05c.

Old Material.—A turn in the market, which some had been looking for recently, developed during the week. Prices have eased off 50c. a ton on heavy melting steel and machine shop turnings and 50c. a ton on borings and turnings. A Cleveland mill purchased about 10,000 tons of scrap at reported prices of $16 for heavy melting steel and $12.50 for blast furnace grades. These purchases, however, have failed to strengthen the market. Dealers are paying $15.75 for heavy melting steel scrap and $12.25 for blast furnace scrap for Cleveland delivery. Machine shop turnings have been sold to a dealer at $11.50. Dealers are offering $17 to $17.50 for heavy melting steel and $16.50 to $17 for compressed sheet steel for Youngstown delivery. Detroit automobile companies have sent out their scrap lists for September, amounts offered being about the same as during last few months.

We quote per gross ton delivered consumers' yards in Cleveland:

Heavy melting steel	$15.50 to $15.75
Rails for rolling	16.25 to 16.50
Rails under 3 ft.	18.00 to 18.50
Low phosphorus billet, bloom and slab crops	19.00 to 19.50
Low phosphorus sheet bar crops	18.50 to 19.00
Low phosphorus plate scrap	18.50 to 19.00
Low phosphorus forging crops	16.75 to 17.25
Cast iron borings	12.00 to 12.50
Machine shop turnings	11.25 to 11.75
Mixed borings and short turnings	12.00 to 12.50
Compressed sheet steel	14.00 to 14.25
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	15.50 to 15.75
Railroad malleable	18.00 to 18.50
Light bundled sheet stampings	12.00 to 12.50
Steel axle turnings	12.50 to 13.00
No. 1 cast	16.50 to 17.00
No. 1 busheling	12.50 to 13.00
No. 2 busheling	12.00 to 12.50
Drop forge flashings, 15 in. and under	11.50 to 12.00
Railroad grate bars	12.50 to 13.00
Stove plate	12.50 to 13.00
Pipes and flues	10.00 to 10.50

New York

Bridge Contract Calls for 30,000 Tons of Steel—Active Demand for Spot Pig Iron

NEW YORK, Aug. 31.—Sales of pig iron by brokers in this district during the past week totaled about 9500 tons. Most of the individual orders placed were relatively small, indicating that purchases of spot iron to supplement what had previously been contracted for are in surprisingly good volume. Fresh inquiries actually before the trade are small, but prospective business expected to develop early in September totals close to 6000 tons. The Genesee furnace, Charlotte, N. Y., which recently blew in, has been an active seller recently, but the two other up-State furnaces have accumulated fair backlogs. One of them is booked through September, while the other, although comfortably supplied with orders, still has some piled iron to draw from. These three furnaces are reported to have shared in 7000 tons of foundry iron recently placed by a Westfield, Mass., melter. The inquiry of the Singer Mfg. Co. for 2000 tons for delivery in Scotland is still pending. Because of the high eastbound ocean freight rate of $4.25 it is believed that this business will be placed abroad rather than in this country. Quotations on German iron to American melters have stiffened to the extent that $21, base, duty paid, is generally asked, and offers of more than 25c. to 50c. less than that price are rarely accepted. Indian iron is quoted at $21, base, duty paid port of entry. The General Electric Co., Schenectady, N. Y., is in the market for 1000 tons for its Elmira, N. Y., plant. Foundry operations in this district appear to be fairly well maintained.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.54 from Virginia:

East Pa. No. 2 fdy., sil. 1.75 to 2.25	$21.89 to $23.02
East Pa. No. 2X fdy., sil. 2.25 to 2.75	22.39 to 23.52
East Pa. No. 1X fdy., sil. 2.75 to 3.25	22.89 to 24.02
Buffalo fdy., sil. 1.75 to 2.25 (all rail)	22.91 to 23.91
No. 2 plain fdy., sil. 1.75 to 2.25 (by barge, del'd alongside in lighterage limits, N. Y. and Brooklyn)	20.00 to 21.00
No. 2 Virginia fdy., sil. 1.75 to 2.25	27.54 to 28.04

Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes	3.34c.
Soft steel bars and small shapes	3.24c.
Iron bars	3.24c.
Iron bars, Swedish charcoal	7.00c. to 7.25c.
Cold-finished steel shafting and screw stock—	
Rounds and hexagons	4.00c.
Flats and squares	4.50c.
Cold-rolled strip, soft and quarter hard	6.25c.
Hoops	4.49c.
Bands	3.99c.
Blue annealed sheets (No. 10 gage)	3.89c.
Long terne sheets (No. 28 gage)	6.35c.
Standard tool steel	12.00c.
Wire, black annealed	4.50c.
Wire, galvanized annealed	5.15c.
Tire steel, 1½ x ⅛ in. and larger	3.30c.
Smooth finish, 1 to 2½ x ¼ in. and larger	3.65c.
Open-hearth spring steel, bases	4.50c. to 7.00c.

	Per Cent Off List
Machine bolts, cut thread	40 and 10
Carriage bolts, cut thread	30 and 10
Coach screws	40 and 10

Boiler Tubes—	Per 100 Ft.
Lap welded steel, 2-in.	$17.33
Seamless steel, 2-in.	20.24
Charcoal iron, 2-in.	25.00
Charcoal iron, 4-in.	67.00

Discounts on Welded Pipe

Standard Steel—	Black	Galv.
⅛-in. butt	46	29
¼-in. butt	51	37
⅜-in. butt	53	39
2½-6-in. lap	46	35
7 and 8-in. lap	44	17
11 and 12-in. lap	37	12
Wrought Iron—		
⅛-in. butt	4	+19
¼-in. butt	11	+ 9
1-1½-in. butt	14	+ 6
2-in lap	5	+14
3-6-in. lap	11	+ 6
7-12-in. lap	3	+16

Tin Plate (14 x 20 in.)

	Prime	Seconds
Coke, 100 lb. base box	$6.45	$6.20
Charcoal, per box—	A	AAA
IC	$9.70	$12.10
IX	12.00	14.25
IXX	13.90	16.00

Terne Plate (14 x 20 in.)

IC—20-lb. coating	$10.00 to $11.00
IC—30-lb. coating	12.00 to 13.00
IC—40-lb. coating	13.75 to 14.25

Sheets, Box Annealed—Black, C. R. One Pass†

	Per Lb.
Nos. 18 to 20	4.30c.
Nos. 22 and 24	4.35c.
No. 26	4.40c.
No. 28*	4.50c.
No. 30	4.70c.

Sheets, Galvanized†

	Per Lb.
No. 14	4.60c.
No. 16	4.75c.
Nos. 18 and 20	4.90c.
Nos. 22 and 24	5.05c.
No. 26	5.20c.
No. 28*	5.50c.
No. 30	6.00c.

*No. 28 and lighter, 36 in. wide, 10c. higher per 100 lb.

†Lots of 50 bundles 25c. per 100 lb. less.

Ferroalloys.—With most consumers of both ferromanganese and spiegeleisen covered by contract for the year, new buying is almost negligible. One British representative sold a small amount of ferromanganese at the full price of $100, seaboard, recently, and other producers report an occasional carload of both alloys. There has been no change in prices.

Reinforcing Bars.—The Truscon Steel Co. will supply 2400 tons of reinforcing bars for a warehouse in Jersey City to be built by a Chicago contractor. Sizable jobs continue infrequent, and little inquiry has come out in the last week. Bids will soon be received for a new subway job in Manhattan and Queens, but no estimate has yet been made of the tonnage which will be required. Mill prices continue to hold at 2.10c., base Pittsburgh, for small lots, and 2c. for lots of more than 100 tons. The New York warehouse price is steady at 3.15c., delivered at job, and Youngstown warehouses continue to quote 2.50c., or 2.87c., delivered New York.

Warehouse Business.—Activity in purchasing from stock is apparently well maintained, particularly in structural material and reinforcing bars. Recently there has been larger buying of blue annealed sheets than for several months. Jobbers in this district have as yet taken no action toward changing their quotations on black and galvanized sheets to conform to the new mill schedule using No. 24 gage as the base instead of No. 28 gage. It is generally expected that the change will be made effective in the next few days.

Cast Iron Pipe.—The greater part of current business in pressure pipe is in small lots of a few pieces to a few tons, which, however, represent a sizable total. Among municipal awards, Jersey City, N. J., has placed about 500 tons of water pipe with R. D. Wood & Co. Bids on the 10,000-ton pipe inquiry of the city of New York are being passed upon by the Department of Water Supply, Gas and Electricity, after which they will be forwarded to the Board of Estimate and Apportionment for decision on acceptance of the German bid, which was low.

We quote pressure pipe per net ton, f.o.b. New York in carload lots, as follows: 6-in. and larger, $50.60 to $52.60; 4-in. and 5-in., $55.60 to $57.60; 3-in., $65.60 to $67.60; with $5 additional for Class A and gas pipe.

Finished Steel.—August business in finished steel, which with many of the steel companies equaled that of July for this district, was largely in the form of specifications against contracts. Owing to the fact that there was little of outstanding importance so far as individual orders were concerned, the impression was created that the month was quieter than July and that the total tonnage would fall short of that month. Some mills lost tonnage in August, due to hot weather and humidity, and this has been reflected in more extended deliveries on some products, particularly sheets and tin plate. In a few instances mills are quoting from four to eight weeks delivery on sheets, although this can be bettered at mills which have not accumulated substantial backlogs. New York selling offices for sheet manufacturers have received notice to begin quoting black and galvanized sheets on the new base gage, No. 24, for both. With one exception, so far as reported, the mills have named 3c., base Pittsburgh, for black sheets and 3.85c. on galvanized sheets. The one company noted as an exception is holding for 3.10c. on black and 3.90c. on galvanized. Black sheets [No. 28], which last week were obtainable at 3.10c. to 3.15c., Pittsburgh, are now quoted at 3.25c., using 3c. as the base, while No. 28 galvanized sheets, with 3.85c. on the base, are now 4.30c. There are reductions on the heavier gages and increases on the light gages, as is shown in detail on another page of this issue. There has been fairly good contracting for plates for fourth quarter at 1.90c., Pittsburgh. The leading mills have no present intention of announcing an advance, of which there has been some talk, but they emphasize the fact that plates at 1.90c. are $2 a ton below shapes and bars and are not likely to go lower. The strength of the plate price is one of the most outstanding of recent market developments. For some years it has been one of the first products to weaken in the face of any falling off in demand. Prominent in the structural steel tonnage of the week is 29,900 tons for two bridges from Staten Island to New Jersey. A refrigerating plant in Jersey City will take 2500 tons of structural steel and 2400 tons of reinforcing bars, which have been awarded. Railroad car business has been nil as regards both inquiries and orders. Car-building companies are regarding with concern the efforts of some of the railroads to provide their own facilities or to enlarge present facilities for the manufacture of cars.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. per lb.; plates, 2.24c.; structural shapes, 2.34c.; bar iron, 2.24c.

Coke.—Standard foundry continues firm but quiet at $4 to $5 per ton, Connellsville, and furnace grade is reported strong at $3.50 per ton for the rest of the year. The price of by-product coke in this district continues unchanged for September. Delivered prices of Connellsville foundry are $7.91 to $8.91, Newark and Jersey City, N. J.; $8.03 to $9.03, northern New Jersey, and $8.79 to $9.79, New York or Brooklyn. By-product ranges from $9.59 to $10.77, delivered Newark or Jersey City.

Old Material.—The strong upward movement which prices have taken in the past few weeks has lost force, and the market has evidently reached a temporary level, with the maximum selling price of heavy melting steel at $17.50 per ton, delivered, and the minimum as yet undetermined. In a few instances brokers are still paying as high as $17.25 per ton, delivered, but most purchasing for delivery to eastern Pennsylvania consumers is from $15.50 to $17 per ton, with only small tonnages appearing at the lower price. While the upward movement of the market was still strong, brokers made efforts to close contracts at $18 per ton, delivered, but the recent sale of close to 20,000 tons to a Coatesville, Pa., consumer at a maximum of $17.50, seems to have temporarily removed the $18 price from consideration. Chemical borings are stronger, with $15.75 per ton, delivered Bound Brook, N. J., offered by some brokers.

Buying prices per gross ton, New York, follow:

Heavy melting steel (yard)	$11.00 to $11.50
Heavy melting steel (railroad or equivalent)	12.85 to 13.75
Rails for rolling	14.00 to 14.25
Steel car axles	20.75 to 21.25
Iron car axles	24.50 to 25.25
No. 1 railroad wrought	14.75 to 15.25
Forge fire	11.00 to 11.50
No. 1 yard wrought, long	13.75 to 14.25
Cast borings (steel mill)	10.50 to 11.00
Cast borings (chemical)	13.50 to 14.00
Machine shop turnings	10.50 to 11.00
Mixed borings and turnings	10.50 to 11.00
Iron and steel pipe (1 in. diam., not under 2 ft. long)	12.25 to 12.75
Stove plate (steel mill)	11.00 to 11.50
Stove plate (foundry)	11.50 to 12.00
Locomotive grate bars	11.00 to 11.50
Malleable cast (railroad)	16.00 to 16.50
Cast iron carwheels	13.50 to 14.00
No. 1 heavy breakable cast	13.00 to 14.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$16.50 to $17.00
No. 1 heavy cast (column, building materials, etc.), cupola size	15.00 to 15.50
No. 2 cast (radiators, cast boilers, etc.)	14.00 to 14.50

Philadelphia

Basic Pig Iron Sales of 25,000 Tons—Scrap Market Active and Advancing

PHILADELPHIA, Aug. 31.—Three Eastern consumers of basic pig iron have made purchases in the past week totaling 25,000 tons. The largest purchase, 15,000 tons, developed prices 25c. a ton lower than prevailed on a large tonnage bought by the same company in July. Greater activity and advancing prices feature the old material market, with sales of 15,000 tons of heavy melting steel to a leading consumer at $17.50, delivered. Nearly all other grades of scrap have gone up 50c. a ton or more.

In finished steel the only notable purchase was by the Pennsylvania Railroad, which closed for 15,000 to

20,000 tons of plates, shapes and bars to be used by the Ralston Steel Car Co. in the rebuilding of 2000 cars for this road. The steel is reported to have been divided between two Pittsburgh mills.

As in recent weeks, the outstanding characteristic of the steel trade is the large number of orders and specifications of small or moderate size, with the aggregate maintaining the pace established early in July. Nearly all local sales offices report that August business will equal that of July, and in a few cases the tonnage booked was larger than that of the previous month. If there is any exception it is in plates, which have been less active than other finished steel products. Sheets have been in good demand, and some of the mills are so well sold that nothing better than six or eight weeks' delivery is being promised. On structural shapes the situation is also fairly tight with respect to deliveries. While most of the current business is in the form of specifications against contracts, there has been a fair amount of fourth quarter contracting, particularly in plates and bars.

Pig Iron.—A leading Eastern steel company has bought 15,000 tons of basic iron for September-October delivery, while two others have each bought 5000 tons, also for early shipment. On the large tonnage the prices paid were about $20.75 and $21, delivered, while slightly higher figures were obtained on the smaller lots. Most of the tonnage was booked by one seller. In foundry iron there has been a fair degree of activity, with quotations being held more firmly at $21, base, furnace. One large producer has no standard foundry iron for September and very little for the early part of fourth quarter. Other furnaces are sold up for 10 or 12 weeks. While many of the larger foundries have covered their requirements to the end of the year, a good deal of fourth quarter buying is yet to be done by the smaller consumers. One or two furnace interests talk of advancing quotations 50c. a ton, but there is doubt in other quarters that this will be done, in view of the fact that the furnaces of this district are now so closely restricted as to the territory in which they can sell. In New England, New York State and even in northern Jersey eastern Pennsylvania iron is almost entirely crowded out on account of the lower prices quoted by New York and New England furnaces. Sales of 1500 tons of low phosphorus pig iron have been made by a nearby furnace at $23.50 and $24, furnace. The Pennsylvania Railroad is in the market for 300 to 500 tons of high manganese, low silicon iron and the same quantity of high silicon, low manganese iron for use at Altoona, Pa. The Bethlehem Steel Corporation will put in blast this week one furnace at Sparrows Point, Md., and one at Johnstown, Pa. Foreign pig iron is becoming less of a factor. It is probable that very little iron will henceforth be brought in unsold, due to the new demurrage rule which has been put into effect by the railroads, whereby importers are given only 48 hr. to move cars after they are loaded. For the first four days after the 48 hr. period $2 a day demurrage will be charged and after that $5 a day.

Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Tank steel plates, ¾-in. and heavier	2.80c. to 3.00c.
Tank steel plates, ¼-in.	3.00c.
Structural shapes	2.75c. to 2.90c.
Soft steel bars, small shapes and iron bars (except bands)	3.00c.
Round-edge iron	3.50c.
Round-edge steel, iron finished, 1½ x 1½ in.	3.50c.
Round-edge steel, planished	4.30c.
Reinforced steel bars, square, twisted and deformed	3.00c.
Cold-finished steel, rounds and hexagons	4.00c.
Cold-finished steel, squares and flats	4.50c.
Steel hoops	4.00c. to 4.25c.
Steel bands, No. 12 gage to ¼-in., inclusive	3.75c. to 3.90c.
Spring steel	5.00c.
No. 28 black sheets	4.35c.
No. 10 blue annealed sheets	3.40c.
No. 28 galvanized sheets	5.55c.
Diamond pattern floor plates—	
¼-in.	5.30c.
⅜-in.	5.50c.
Rails	3.20c.
Tool steel	8.50c.
Swedish iron bars	6.00c. to 6.50c.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$21.76 to $22.26
East. Pa. No. 2X, 2.25 to 2.75 sil.	22.26 to 22.76
East. Pa. No. 1X	22.76 to 23.26
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17
Basic delivered eastern Pa.	20.75 to 21.50
Gray forge	21.00 to 22.00
Malleable	22.00 to 22.50
Standard low phos. (f.o.b. furnace)	22.00 to 23.00
Copper bearing low phos. (f.o.b. furnace)	23.50 to 24.00

Ferroalloys.—No buying of ferromanganese of importance is looked for until nearly the end of the year, as consumers are generally well covered until Jan. 1. Meanwhile, prices of domestic ferromanganese remain unchanged at $88 to $95, furnace.

Billets.—A local manufacturer has bought several hundred tons of high carbon and special alloy billets. A railroad has bought 100 tons of forging billets. Otherwise the market is inactive. Prices are unchanged at $35, Pittsburgh, for rerolling billets, with $5 added for ordinary forging billets.

Plates.—Plate orders were in a little better volume in the past week, but taking August as a whole, business has not been as good as in July. In this respect plates are an exception among finished steel products. Eastern mills are operating at about 50 per cent. It is noteworthy, however, that there has been more fourth quarter contracting in plates than in other products, due probably to an acceptance by buyers of the firmness of the current price, 1.90c., Pittsburgh. No deviations from this price are reported.

Structural Shapes.—Although there is an absence of large building projects involving steel, the aggregate of small orders is satisfactory from the mill viewpoint. August bookings will compare favorably with those of July, which was the best month of the year with some producers. Deliveries have lengthened; on some sizes shipments are not being promised short of four to six weeks. The price situation is firmer than at any time in months. The usual quotation is 2c., Pittsburgh, for carload lots or larger, but 2.10c. is frequently being obtained when early delivery can be given.

Bars.—A few consumers of bars in this district have signed contracts for fourth quarter at 2c., Pittsburgh. Current specifications are in fairly good volume. Bar iron demand is only fair. The price is unchanged at 2.22c., Philadelphia.

Sheets.—Some of the sheet mills which have adopted the new base of No. 24 gage for black and galvanized sheets have announced base prices of 3c., Pittsburgh, on black and 3.85c. on galvanized, but an Eastern producer is quoting these prices only for September. For October or later its prices are 3.10c. and 3.95c., Pittsburgh. Sheet manufacturers will probably adjust all contract tonnage to the new basis wherever this is to the benefit of the buyer, as on the heavier gages, net prices of which are lower under the new schedule of extras. Nearly all mills have substantial backlogs, and early deliveries are harder to get. Some mills quote six to eight weeks as the best they can do on black and galvanized. Blue annealed sheets are firmer, with most of the sales at 2.30c., Pittsburgh.

Warehouse Business.—The volume of buying of steel products out of stock in August was about equal to that of July, which was a fairly good month. This week local jobbers will adjust sheet prices to the new mill bases.

Imports.—Pig iron imports at Philadelphia last week totaled 4968 tons, of which 3250 tons came from Germany, 1518 tons from India and 200 tons from the Netherlands. Other imports were as follows: Steel bars from Belgium, 83 tons; structural steel from Bel-

(*Concluded on page 653*)

San Francisco

Penstock and Pipe Line Will Require 7000 Tons—Steel Pipe Reduced

SAN FRANCISCO, Aug. 28 (*By Air Mail*).—A change in the base gages for black and galvanized sheets, the arrival of fresh shipments of foreign iron, steel and coke, and slightly stronger buying in nearly all departments of the market have been outstanding features of the past week.

The leading producer of black and galvanized sheets and also several of the principal independent mills have notified local buyers that on and after Aug. 27 mill prices on both black and galvanized sheets will be based on No. 24 gage instead of on No. 28 gage as heretofore. No. 28 gage galvanized sheets hereafter will take an extra of 50c. per 100 lb., and No. 28 gage black sheets will take a differential of 25c. The new base price on galvanized sheets is 3.85c. per lb., Pittsburgh, and on black sheets it is 3c.

Imports during the past week included the following: 800 tons of soft steel bars and angles from Belgium, 250 tons of foundry pig iron from India, about 100 tons of special analysis foundry iron from Sweden, and 4500 tons of by-product coke from Germany.

Pig Iron.—Both domestic producers and importers say that inquiries are more numerous and that current sales are slightly larger. There are no important inquiries up at present, but several larger buyers are expected to come into the market during the next few weeks.

*Utah basic	$25.00 to $26.00
*Utah foundry, sil. 2.75 to 3.25	25.00 to 26.00
**English foundry, sil. 2.75 to 3.25	25.00
**Indian foundry, sil. 2.75 to 3.25	25.00
**German foundry, sil. 2.75 to 3.25	23.00 to 23.50
**Dutch foundry, sil. 2.75 to 3.25	22.50
**Belgium foundry, sil. 2.75 to 3.25	22.00

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—Lettings total 2210 tons. Few fresh inquiries of importance have come out for figures. The largest individual letting, 1000 tons, for transmission towers for the Great Western Power Co., San Francisco, was taken by the Pacific Coast Steel Co. Practically all of the Eastern mills are quoting plain material at 2.35c., c.i.f. Coast ports. Nothing below that figure is known to have been named recently.

Plates.—The Southern California Edison Co., Los Angeles, is expected to call for bids shortly on 7000 tons for a penstock and pipe line at San Diego, Cal. The Pacific Coast Engineering Co., Oakland, Cal., has taken 250 tons for a pipe line for an unnamed interest in Colombia, South America. All of the leading sellers are quoting plates at 2.30c., c.i.f. Coast ports.

Bars.—While local out-of-stock quotations on reinforcing bars have weakened, the asking price on Belgian bars has strengthened and is now about 1.80c. to 1.90c., duty paid, c.i.f. Coast ports. Jobs placed with local jobbers during the week that call for 100 tons and over will take an aggregate of about 500 tons. Local jobbers' quotations are nominal. It is understood that 2.20c., base, per lb. was quoted during the week on about 200 tons. On carload lots the range is about 2.50c. to 2.65c., base, per lb., and on less-than-carload lots it is about 2.80c. to 3c., base.

Cast Iron Pipe.—San Bernardino, Cal., will close bids Aug. 31 on 418 tons of 4, 6 and 8-in. Class B cast iron pipe. The 412 tons of 4, 6, 8 and 10-in. Class B cast iron pipe required under Specification 740 by Los Angeles will be refigured and new bids are expected to be called for shortly. Quotations are unchanged at $50 to $52, base, water shipment, San Francisco.

Steel Pipe.—The Wenatchee Domestic Water Association, Wenatchee, Wash., has placed 290 tons of 2 to 10-in. standard line pipe with the Hillsboro Pipe & Investment Co., Hillsboro, Wash. The Standard Oil Co. of California, San Francisco, has closed bids on 125 tons of 3, 4, 6 and 8-in. line pipe. Most of the Eastern mills have reduced their quotations 5c. per 100 lb. on account of the reduction on ocean freight rates of $1 a ton, reported in these columns a week ago. Steel pipe is not quoted on a c.i.f. basis. It is sold f.o.b., Pittsburgh, and the freight is added.

Sheets.—The Kittle Mfg. Co., Los Angeles, has placed 700 tons of black sheets with the Columbia Steel Corporation, San Francisco. Mill prices both on black and galvanized sheets are now based on No. 24 gage instead of No. 28, as mentioned above. Quotations are as follows: No. 24 gage galvanized sheets, 3.85c., base Pittsburgh; No. 24 gage black sheets, 3c., base, and No. 10 gage blue annealed sheets, 2.30c., base. No. 28 gage galvanized sheets take an extra of 50c. per 100 lb., and No. 28 gage black sheets take an extra of 25c.

Coke.—The Southern Pacific Co., San Francisco, is in the market for about 400 tons of by-product coke. A local importer brought in 4500 tons of German by-product during the week, which is being offered at about $12 to $12.50 per net ton at incoming dock.

Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and structural shapes	3.30c.
Mild steel bars and small angles	3.30c.
Small channels and tees, ¾-in. to 2¾-in.	3.90c.
Spring steel, ⅜-in. and thicker	7.00c.
No. 28 black sheets	4.90c.
No. 10 blue annealed sheets	3.90c.
No. 28 galvanized sheets	6.00c.
Common wire nails, base per keg	$3.75
Cement coated nails, base per keg	3.00

Birmingham

Soil Pipe Shops Slowing Up, But Pressure Pipe Plants Run at Capacity

BIRMINGHAM, Aug. 31.—Pig iron is being quoted at $21 per ton, Birmingham, for No. 2 foundry, both for delivery during September and through the fourth quarter. Sales are confined principally to small lots, although now and then an order for several hundred tons is booked. Business booked for the last three months of the year has not been in sufficient volume to warrant a statement that a buying movement has set in. Furnace interests in this State are confident that requirements of consumers will call for all the foundry iron that can be made at the present rate of production, with 14 stacks on that grade. Consuming plants are active, with the exception of shops making cast iron soil pipe and fittings, which have been operating at an unsatisfactory rate for several weeks. The pressure pipe shops, on the other hand, cannot catch up with deliveries. Jobbing foundries are also very busy. Stove makers are still producing in anticipation of a strong seasonal demand, with considerable stock already moving. Many of the diversified consuming interests are buying iron as the need for it develops, and are experiencing no difficulty in obtaining desired deliveries.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$21.00
No. 1 foundry, 2.25 to 2.75 sil.	21.50
Basic	21.00
Charcoal, warm blast	30.00

Rolled Steel.—The Gulf States Steel Co. has four open-hearth furnaces in operation, with the other two ready for operation as soon as the finishing departments require the additional steel. This company overhauled its open-hearth furnaces during the past month. The Tennessee Coal, Iron & Railroad Co. has practically all of its open-hearth furnaces in operation and is not accumulating much steel. Shipments of finished steel, both by rail and water, are heavy. All fabricating shops here are busy. Soft steel bars and structural shapes still range from 2.15c. to 2.25c., base Birmingham, and tank plates from 2.05c. to 2.15c.

Cast Iron Pipe.—All pressure pipe shops of this State are in full operation and are moving their product as rapidly as it is manufactured. Quotations remain unchanged at $40 to $41, Birmingham, for 6-in.

and larger diameters. New lettings are not heavy, but it is still believed that shops will continue active all through the winter. It is commonly expected that production for 1926 will exceed that of any previous year.

Coke.—Every by-product coke works of the district is operating at capacity, and independent producers are shipping as rapidly as they can get cars.

Old Material.—There is very little buying, and prices are weak but unchanged. Pressure pipe shops are taking some cast and a little old material is being bought by blast furnaces, but the total amount of business placed is negligible.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	12.00 to 13.00
Railroad wrought	12.00 to 13.00
Steel axles	17.00 to 18.00
Iron axles	17.00 to 18.00
Steel rails	13.00 to 14.00
No. 1 cast	16.50 to 17.00
Tramcar wheels	16.00 to 17.00
Carwheels	16.00 to 16.50
Stove plate	14.00 to 14.50
Machine shop turnings	7.50 to 8.00
Cast iron borings	7.50 to 8.00
Rails for rolling	15.00 to 16.00

St. Louis

Bids in on 6000 Tons for Court House—Scrap and Pig Iron Dull

ST. LOUIS, Aug. 31.—Buying of pig iron is confined largely to spot tonnages of high silicon material. The largest inquiries in weeks are one for 2000 tons of malleable for September shipment and another for 1000 tons of the same grade for last quarter delivery, both coming from Illinois melters. Two northern Illinois melters bought 500 tons each, one lot being of 2.25 to 2.75 per cent silicon stove plate iron and the other being 2.75 to 3.25 per cent silicon special iron. It is believed that there will be little further buying for the remainder of this quarter and that some existing contracts will take melters through the last quarter. Prices are unchanged.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices, $2.16 freight from Chicago, $4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$22.66 to $23.16
Northern malleable, sil. 1.75 to 2.25	22.66 to 23.16
Basic	23.16 to 24.16
Southern fdy., sil. 1.75 to 2.25	24.42 to 25.42
Granite City iron, sil. 1.75 to 2.25	22.81 to 23.31

Coke.—The demand for industrial grades of coke is good, considering the season. The by-product ovens in this district are reported to have very little coke in stock. Some inquiries are reaching this market from Detroit.

Finished Iron and Steel.—Bids for 6000 tons of steel for the St. Louis Civil Court House, as opened last week, follow: Mississippi Valley Structural Steel Co., $77.88 a ton, a total of $467,280; McClintic-Marshall Co., $81.90, a total of $491,400; Stupp Brothers Bridge & Iron Co., $81, a total of $486,000. The St. Louis Board of Public Service is expected to award a contract to the lowest bidder this week. A fairly large summer business is being booked by the mills, although orders are individually small. Business from the oil fields has let up, but all material on contract is being taken as scheduled. Very little tonnage is coming from the railroads. Warehouse business is better than a year ago.

Old Material.—The strength of scrap in the Eastern markets is not being reflected here. Leading consumers are reported to be comfortably supplied with stocks, and are waiting for railroad car buying to develop before they will take on any more material. There is practically no business in relaying rails. Railroad lists include: Baltimore & Ohio, 19,820 tons; Chicago, Burlington & Quincy, 5800 tons; Chicago, Milwaukee & St. Paul, 8400 tons; Louisville & Nashville, 4800 tons; Pennsylvania, 3800 tons; Big Four, 3400 tons; Union Pacific, 2800 tons; Missouri Pacific, 1600 tons; Chicago & Alton, 1400 tons; New Orleans Great Northern, 100 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	$12.00 to $12.50
Rails for rolling	16.75 to 17.25
Steel rails less than 3 ft.	16.75 to 17.25
Relaying rails, 60 lb. and under	20.50 to 23.50
Relaying rails, 70 lb. and over	26.50 to 29.00
Cast iron car wheels	15.25 to 15.75
Heavy melting steel	13.75 to 14.25
Heavy shoveling steel	13.75 to 14.25
Frogs, switches and guards cut apart	15.00 to 15.50
Railroad springs	17.50 to 18.00
Heavy axle and tire turnings	11.00 to 11.50
No. 1 locomotive tires	16.00 to 16.50
Per Net Ton	
Steel angle bars	13.00 to 13.50
Steel car axles	19.25 to 19.75
Iron car axles	21.00 to 21.50
Wrought iron bars and transoms	20.25 to 20.75
No. 1 railroad wrought	12.00 to 12.50
No. 2 railroad wrought	12.25 to 12.75
Cast iron borings	9.75 to 10.25
No. 1 busheling	10.75 to 11.25
No. 1 railroad cast	14.75 to 15.25
No. 1 machinery cast	17.00 to 17.50
Railroad malleable	13.25 to 13.75
Machine shop turnings	7.00 to 7.50
Bundled sheets	7.00 to 7.50

Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and structural shapes	3.25c.
Bars, mild steel or iron	3.15c.
Cold-finished rounds, shafting and screw stock	3.75c.
No. 28 black sheets	4.60c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.50c.
Black corrugated sheets	4.65c.
Galvanized corrugated sheets	5.75c.
Structural rivets	3.65c.
Boiler rivets	3.85c.
	Per Cent Off List
Tank rivets, ⅞-in. and smaller	70
Machine bolts	50 and 5
Carriage bolts	47½
Lag screws	55 and 5
Hot-pressed nuts, square, blank or tapped	3.25c. off per lb.
Hot-pressed nuts, hexagons, blank or tapped	3.75c. off per lb.

Scrap Dull at Toronto, Active at Montreal

TORONTO, ONT., Aug 30.—Notwithstanding a general downward revision of from $1 to $2 per ton in Toronto iron and steel scrap prices a week ago, consumers failed to respond to the reductions with the result that the demand for old material in this market is comparatively quiet. There is, however, a steady demand for small tonnages on spot account. It is understood that many consumers throughout Ontario have only a few days' supply of scrap on hand, and it is from these that the greater part of current business is derived. Mills and other large consumers in the Hamilton district are fairly well stocked and are in no haste to place contracts either for spot or future delivery. At Montreal, where prices were advanced from $1 to $2 a week ago, the market has become stronger and sales show much improvement over that of the past four or five weeks. The recent advance had the effect of bringing lagging buyers into the market, with the result that dealers put a good volume of business on their books. Montreal dealers also report improvement in sales on export account. Dealers' buying prices are as follows:

	Toronto	Montreal
Per Gross Ton		
Steel turnings	$8.50	$8.00
Machine shop turnings	8.50	8.00
Wrought pipe	6.00	6.00
Rails	11.00	10.00
No. 1 wrought scrap	11.00	14.00
Heavy melting steel	11.00	9.00
Steel axles	16.00	17.00
Axles, wrought iron	18.00	19.00
Per Net Ton		
Standard carwheels	15.00	16.00
Malleable scrap	14.00	14.00
Stove plate	10.00	13.00
No. 1 machinery cast	16.00	15.00

Boston

Conduit Takes 5700 Tons of Steel—Scrap Demand Increases

BOSTON, Aug. 31.—A still further recession in pig iron buying has taken place. Current business is confined to small lots, with New York State furnaces taking most of it. A Massachusetts heater manufacturer is reported to have bought a round lot of New York State No. 2 plain iron, but the sale cannot be confirmed. The manufacturer, however, is endeavoring to cover fourth quarter requirements and presumably will buy several thousand tons. A textile machinery maker is sounding out the market for fourth quarter, but states that the placing of orders will depend on business developments within the next week or two. One New York State furnace, previously reported as having advanced prices 50c. a ton, continues to quote its new schedule, and a second furnace in that State has advanced 50c. a ton to $20, base furnace. Furnaces in other territories have not changed their prices and are still somewhat out of line with New York State producers and the Mystic Iron Works, which is on a base of $20, Everett.

We quote delivered prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$24.15 to $24.65
East. Penn., sil. 2.25 to 2.75	24.65 to 25.15
Buffalo, sil. 1.75 to 2.25	22.91 to 23.91
Buffalo, sil. 2.25 to 2.75	23.41 to 24.41
Virginia, sil. 1.75 to 2.25	27.92 to 28.42
Virginia, sil. 2.25 to 2.75	28.42 to 28.92
Alabama, sil. 1.75 to 2.25	30.60
Alabama, sil. 2.25 to 2.75	31.10

Coke.—Both the New England Coal & Coke Co. and the Providence Gas Co. announce that September specifications against last half by-product foundry coke contracts will be on a basis of $12 a ton, delivered within a $3.10 freight rate zone, the same price as for August. Foundries are ordering on a hand-to-mouth basis, but it is expected business will show a steady, although slow, expansion this month. The New England Coal & Coke Co.'s new battery of ovens is approximately 50 per cent completed.

Finished Material.—Business in shapes and plates tapered off toward the last of August, with buyers waiting for the opening of fourth quarter books. Fabricators report an unusually large number of small jobs in the market, but comparatively few large ones. The most important contract of the past week was one placed by the Lock Joint Pipe Co., Ampere, N. J., for a 7-mile conduit for Providence, R. I. This calls for approximately 5663 tons of steel for piping, 100 tons of steel castings and 150 tons of semi-steel castings, a total of nearly 6000 tons of material. Shapes are firm at 2c. per lb., base Pittsburgh, and plates at 1.90c. Bars are unchanged at 2c., base Pittsburgh. Reinforcing bar prices are unsettled because of keen competition among sellers. Buying of bolts and nuts during August was on a hand-to-mouth basis. Discounts are steady. Most New England bolt and nut makers are operating with reduced working forces and on part time, but have made no reduction in wages.

Sheets.—Mills booked fewer sheet orders in August than they did in July. September, however, is expected to be a good month, since fourth quarter books will be opened and stocks in the hands of consumers and jobbing warehouses are said to be comparatively small. During the closing days of August some business in galvanized sheets was taken on old contracts at 4.20c., base Pittsburgh, for No. 28 gage.

Old Material.—While pig iron buying has fallen off, the demand for old material has increased. As heretofore, heavy melting steel is by far the most active material, with the bulk of business going at $11.75 to $12.25 on cars, shipping point, for eastern Pennsylvania delivery. Some dealers have picked up carlots at around $11.50 on cars, for Pennsylvania delivery, to be applied on old contracts. There was also a good turnover in steel turnings, mixed borings and turnings, rolling mill borings, forged scrap and bundled skeleton the past week, with some activity in forged flashings, specification pipe and scrap rails. There is a limited call for railroad malleable. Other materials do not figure prominently in dealings.

The following prices are for gross-ton lots delivered consuming points:

Textile cast	$19.50 to $20.00
No. 1 machinery cast	19.00 to 19.50
No. 2 machinery cast	17.00 to 18.00
Stove plate	13.00 to 13.50
Railroad malleable	19.50 to 20.50

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$11.75 to $12.25
No. 1 railroad wrought	12.50 to 13.00
No. 1 yard wrought	11.25 to 11.50
Wrought pipe (1 in. in diameter, over 2 ft. long)	11.50
Machine shop turnings	9.00 to 9.50
Cast iron borings, chemical	10.50 to 10.75
Cast iron borings, rolling mill	9.00 to 9.25
Blast furnace borings and turnings	8.50 to 9.00
Forged scrap	9.50 to 10.00
Bundled skeleton, long	9.50 to 10.00
Forged flashings	9.50 to 10.00
Bundled cotton ties, long	8.75
Bundled cotton ties, short	9.25 to 9.50
Shafting	16.50 to 17.50
Street car axles	16.00 to 17.00
Rails for rerolling	12.50 to 13.00
Scrap rails	11.50 to 12.25

Warehouse Prices, f.o.b. Boston

	Base per Lb.
Soft steel bars and small shapes	3.265c.
Flats, hot rolled	4.15c.
Reinforcing bars	3.265c. to 3.54c.
Iron bars—	
Refined	3.265c.
Best refined	4.60c.
Norway, rounds	6.60c.
Norway, squares and flats	7.10c.
Structural shapes—	
Angles and beams	3.365c.
Tees	3.365c.
Zees	3.465c.
Plates	3.365c.
Spring steel—	
Open-hearth	5.00c. to 10.00c.
Crucible	12.00c.
Tire steel	4.50c. to 4.75c.
Bands	4.015c. to 5.00c.
Hoop steel	5.50c. to 6.00c.
Cold-rolled steel—	
Rounds and hexagons	3.95c.
Squares and flats	4.45c.
Toe calk steel	6.00c.

Buffalo

Pig Iron Quiet, Scrap Stronger—Fourth Quarter Demand for Steel Appears

BUFFALO, Aug. 31.—Fresh inquiry for pig iron is light, being estimated at only 2000 to 3000 tons. Sales are estimated at about 5000 tons for the week. Standing contracts have not yet been fulfilled, and tonnage is going forward from furnaces fully as fast as produced. Some lots are being sold to established trade without prior inquiry. In the Buffalo district the market is $20, base furnace, for foundry grade, but even $19, base, on outside business is not low enough to meet some competition. Furnace operations in the district are at about 65 per cent of capacity. Steel makers are not seeking pig iron business as actively as usual.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain fdy., sil. 1.75 to 2.25	$19.00 to $20.00
No. 2X foundry, sil. 2.25 to 2.75	19.50 to 20.50
No. 1X foundry, sil. 2.75 to 3.25	20.50 to 21.50
Malleable, sil. up to 2.25	20.00
Basic	19.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—Fourth quarter inquiry is developing in volume for some materials. The going price of 2.365c., Buffalo, which is being quoted on fourth quarter bar inquiries has been maintained to date, it is reported. Other fourth quarter quotations are 2.265c., Buffalo, on shapes and 2.165c. on plates. Bars for September shipment are offered at 2.265c., Buffalo. Further increases in output have raised Buffalo mill operations to close to 85 per cent of capacity, the highest rate of the quarter, if not of the year. Sheet inquiry for fourth quarter is in good volume.

Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and structural shapes	3.40c.
Mild steel bars	3.30c.
Cold-finished shapes	4.45c.
Rounds	3.95c.
No. 28 black sheets	4.45c.
No. 10 blue annealed sheets	3.80c.
No. 28 galvanized sheets	5.60c.
Common wire nails, base per keg	$3.90
Black wire, base per 100 lb	3.90

Reinforcing bar business is quiet, but some new inquiry is reported, with prospects for improved sales in September. August shipments were very large. The ruling price on reinforcing bars is 2.265c., Buffalo. Demand for plates and shapes is not brisk. Warehouse business was better than normal in August.

Old Material.—Dealers again are dominating the market, with brokers seeking tonnage from them to ship against new contracts. Dealers are reported asking $17.50 to $18 for the best heavy melting steel and $16.50 to $17 for the ordinary grade. Tonnages probably will begin moving at these prices this week, it is predicted. Other materials are being bid up to slightly higher prices, both by brokers holding contracts and by dealers who are stocking their yards. Some new buying is looked for within two weeks in materials in which there has not been much activity for a month or more. Yard stocks here are reported lower than usual, considering the volume of recently placed business and present mill operations.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	$16.50 to $17.00
Selected No. 1 heavy melting steel	18.00 to 18.50
Low phosphorus	18.50 to 19.00
No. 1 railroad wrought	15.00 to 15.50
Carwheels	17.00 to 17.50
Machine shop turnings	10.50 to 11.00
Mixed borings and turnings	12.00 to 12.50
Cast iron borings	12.00 to 13.00
No. 1 busheling	17.00 to 17.50
Stove plate	15.25 to 15.50
Grate bars	14.00 to 14.50
Hand bundled sheets	12.00 to 12.50
Hydraulic compressed	17.00 to 17.50
No. 1 machinery cast	16.00 to 16.25
Railroad malleable	16.50 to 17.00
Iron axles	24.00 to 25.00
Steel axles	16.00 to 16.50
Drop forge flashings	13.75 to 14.25

Cincinnati

Lake Furnaces Take Most of Pig Iron Placed—Southern Ohio Iron Firm

CINCINNATI, Aug. 31.—Lake furnaces have been successful in booking the major part of the pig iron placed in the past week by consumers in this territory. Among the sales made by northern Ohio sellers were 1800 tons to the Monitor Furnace Co., Cincinnati, 1000 tons to the New Idea Spreader Co., Coldwater, Ohio, and 500 tons to another company. It is reported that this business was taken at $18 to $18.50, base furnace, which is equivalent to a delivered price here of approximately 50c. to $1 under that from the Ironton furnaces. Meanwhile one southern Ohio producer remains out of the market, while another refuses to sell under $20, base furnace, except in the case of old customers, who can obtain sizable lots for $19.50. Malleable iron still shows the effect of Lake competition and is quoted at $19 to $19.50, furnace. A local broker has sold 2000 tons of malleable to a Michigan melter. Shipments of silvery iron have held up well. Prices are strong, with 8 per cent bringing $27.50, furnace. There have been a few scattered sales of Alabama iron at $21, base Birmingham. Unique in the past week's activities was an order from an Indiana consumer for 300 tons of Virginia iron. A Piqua, Ohio, company is asking for 750 tons of foundry iron, and a Louisville melter is expected to buy 400 tons. Otherwise inquiries are of little consequence. A local dealer sold 300 tons of spiegeleisen to a central Indiana company.

Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes	3.40c.
Bars, mild steel or iron	3.20c. to 3.30c.
Reinforcing bars	3.20c. to 3.30c.
Hoops	4.00c. to 4.25c.
Bands	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares	4.35c.
Open-hearth spring steel	4.75c. to 5.00c.
No. 28 black sheets	4.10c. to 4.30c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.25c. to 5.40c.
Structural rivets	3.75c.
Small rivets	65 per cent off list
No. 9 annealed wire, per 100 lb.	$3.00
Common wire nails, base per keg	2.95
Cement coated nails, base per 100-lb. keg	3.15
Chain, per 100 lb	7.55
	Net per 100 Ft.
Lap welded steel boiler tubes, 2-in.	$18.00
4-in.	38.00
Seamless steel boiler tubes, 2-in.	19.00
4-in.	39.00

Based on freight rates of $3.69 from Birmingham and $1.89 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base)	$24.19 to $24.69
Alabama fdy., sil. 2.25 to 2.75	24.69 to 25.19
Tennessee fdy., sil. 1.75 to 2.25	24.69
Southern Ohio silvery, 8 per cent	29.39
So. Ohio fdy., sil. 1.75 to 2.25	21.39 to 21.89
So. Ohio malleable	20.89

Finished Material.—Almost without exception, steel producers have had consistently good business during August, and the end of the month finds total bookings slightly ahead of those in July. The volume of specifications and orders in the past week was large enough to insure the shattering of all previous records for the two mid-summer months. The only disturbing factor is the tendency of some users to take less than their contract requirements. Attention is directed at the moment to prices for the last quarter of the year. At least one important mill has announced its willingness to make fourth-quarter contracts for plates at 1.90c., base Pittsburgh, the prevailing quotation. Sellers believe that bars will range from 2c. to 2.10c., base Pittsburgh, but it is doubtful if more than single carload orders will command the latter figure. Structural shapes probably will remain at 2c., base Pittsburgh. Interest in the sheet market centers on the change in the method of quoting black and galvanized sheets. Several nearby producers have not taken action on the question of making No. 24 gage the base grade. For the present they will continue to base their quotations on No. 28 gage. Black sheets, on the old basis, are firm at 3.15c., Pittsburgh, while galvanized is bringing from 4.20c. to 4.30c., base Pittsburgh, with 4.35c. being asked in some instances. Some mills have advanced automobile body sheets $2 a ton to 4.30c., base Pittsburgh. Blue annealed is steady at 2.30c., base Pittsburgh. The wire goods market is showing signs of recovery from the dullness which has enveloped it in the last six weeks. Common wire nails are bringing $2.65 per keg, Pittsburgh or Ironton, and plain wire $2.50 per 100 lb., Pittsburgh or Ironton. There has been a falling off in the number of sizable structural projects.

Reinforcing Bars.—No awards of consequence have been made in the past week, and fresh inquiries call for only small tonnages. Several large projects, however, are expected to appear within the next month. New billet bars are quoted at 2c., base Pittsburgh, and rail steel bars at 1.90c., base mill.

Warehouse Business.—Sales in August exceeded those in the previous month by about 10 per cent. Bars and tank plates continue to lead in volume of business, and pipe has maintained its recent strength. Structural steel is not so active as local jobbers had anticipated. Irregularities in the prices of common wire nails at river points below Cincinnati are reported. Quotations on all products for delivery in the Cincinnati metropolitan district are unchanged.

Coke.—Although by-product foundry coke will remain at $9.64, delivered Cincinnati, during September, by-product domestic coke has been advanced 50c. a ton. The new schedule places No. 2 at $7.14, delivered

here, and egg and walnut at $7.64. In Michigan by-product foundry is unchanged at $9.50, Detroit ovens, for outside shipments, or $10.25 for local delivery. A 25c. a ton increase in domestic grades establishes a price of $8, Detroit ovens, for outside destinations, and $8.75 for local delivery. By-product foundry coke specifications in August equalled those in the previous month, but domestic coke shipments showed a slight decline. Beehive foundry coke is moving at a liberal rate, with the New River grades bringing $7, ovens. A local dealer has booked 600 tons of beehive foundry, while another seller has sold 1000 tons of by-product foundry.

Based on freight rates of $2.14 from Ashland, Ky., $3.53 from Connellsville, and $2.59 from Wise County ovens and New River ovens, we quote f.o.b. Cincinnati: Connellsville foundry, $7.53 to $8.53; Wise County foundry, $7.09 to $7.59; New River foundry, $9.59 to $10.09; by-product foundry, $9.64.

Old Material.—There has been a slight reaction from the recent attempt of dealers to set up a strong market. Unwillingness of mills in this territory to pay the prices asked for material has been the chief cause of concern. Dealers, however, still believe that steel plants will soon be forced to purchase considerable tonnage at higher figures than have prevailed recently. The Portsmouth, Ohio, works of the Wheeling Steel Corporation has held up shipments on contracts for a week. Prices are steady.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

	Per Gross Ton	
Heavy melting steel	$14.00 to	$14.50
Scrap rails for melting	13.50 to	14.00
Short rails	19.00 to	19.50
Relaying rails	27.00 to	27.50
Rails for rolling	15.00 to	15.50
Old carwheels	13.00 to	13.50
No. 1 locomotive tires	18.00 to	18.50
Railroad malleable	15.50 to	16.00
Agricultural malleable	14.50 to	15.00
Loose sheet clippings	8.50 to	9.00
Champion bundled sheets	10.00 to	10.50
Per Net Ton		
Cast iron borings	7.50 to	8.00
Machine shop turnings	7.00 to	7.50
No. 1 machinery cast	18.00 to	19.00
No. 1 railroad cast	15.00 to	15.50
Iron axles	21.00 to	21.50
No. 1 railroad wrought	10.50 to	11.00
Pipes and flues	9.00 to	9.50
No. 1 busheling	10.50 to	11.00
Mixed busheling	7.00 to	7.50
Burnt cast	8.00 to	8.50
Stove plate	10.50 to	11.00
Brake shoes	11.00 to	11.50

Scrap Prices Firm at Detroit

DETROIT, Aug. 31.—Prices continue firm in this district on all grades of old material, and present melting schedules for the balance of the quarter indicate that there will be no weakening.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	$13.25 to	$13.75
Borings and short turnings	9.50 to	10.00
Long turnings	9.25 to	9.75
No. 1 machinery cast	17.00 to	18.00
Automobile cast	20.50 to	21.50
Hydraulic compressed	12.50 to	13.00
Stove plate	13.50 to	14.50
No. 1 busheling	11.25 to	11.75
Sheet clippings	8.00 to	8.50
Flashings	10.75 to	11.25

The Government of Cuba will advertise about Oct. 1 for bids on the first schools to be erected under the $10,000,000 school building project, according to the American commercial attaché at Havana. Plans call for the erection of small rural schools, rural concentrated schools, school centers, normal schools and kindergartens.

A coke screening plant, for making available for the domestic market an increasing quantity of coke, will be installed at the works of the Algoma Steel Corporation, Sault Ste. Marie, Ont., by Heyl & Patterson, Pittsburgh.

Chicago Iron and Steel Market

(*Concluded from page 643*)

The former is light, while the latter bulks large, both in number of projects and total tonnage. In sales and shipments from warehouses August is slightly ahead of July, as well as August last year. Recent contracts and new projects are shown on page 653.

Wire Products.—Favorable reports on the crop situation have strengthened the hopes of wire producers for a good fall demand. With the harvesting of small grains practically completed, much threshing has been done and early estimates of yields have been exceeded. Specifications from the manufacturing trade are holding up well, and shipping orders from the jobbing trade were the heaviest for any week in the past two or three months. Business is good in all parts of the country except the Northwest, where unfavorable weather conditions have existed for the greater part of the summer. The announcement of spring terms on woven wire fencing brought out a heavy volume of business, but that buying movement appears to be over. Users, generally, continue to hold stocks close to actual requirements and are depending upon prompt shipments from mills. Prices, which are shown on page 639, are stronger. Mill operations average close to 60 per cent of capacity.

RAILROAD EQUIPMENT

Purchase of 25 Locomotives By Three New York Central Lines the Only Business

Railroad buying of equipment in the past week has been very light. The only order was for 25 locomotives for three of the lines of the New York Central system. Details follow:

The Pittsburgh & Lake Erie has bought 10 Pacific type locomotives from the American Locomotive Co.

The Michigan Central has ordered 10 Pacific type locomotives from the American Locomotive Co.

The Boston & Albany has bought 5 Pacific type locomotives from the American Locomotive Co.

Everett Blast Furnace Has Been Rebuilt

The Everett blast furnace at Everett, Pa., now owned by the Everett-Saxton Co., of which W. S. Pilling, 1500 Chestnut Street, Philadelphia, is president, has been rebuilt and will be put in blast again as soon as conditions in the pig iron trade warrant. The furnace has been equipped with a new McKee revolving top, new turbine and compressor, new boilers and a pig casting machine. It will be one of the few furnaces in the country equipped to cast either sand cast or machine cast iron.

The McKinney Steel Co., Cleveland, is operating its new continuous-type combination sheet bar and billet mill. Electrically driven, its capacity is about 50,000 tons monthly. The new mill includes a 21-in. billet and sheet bar mill and an 18-in. mill for rolling small billets.

Announcement has been made by the Department of War that the Pittsburgh Storage and Supply Depot, formerly the Allegheny Arsenal, last Army reservation at Pittsburgh, will be offered for sale. Bids will be opened Sept. 10.

Park & Williams, Inc., selling agent for pig iron, coke, ingot molds and sheet steel, has moved its offices from 1702 to 908 Real Estate Trust Building, Philadelphia.

REINFORCING STEEL

Week's Awards Total Nearly 4800 Tons, with More Than 3000 Tons in Projects Pending

A rather quiet week in reinforcing bars, compared with the earlier weeks of August, brought out awards aggregating nearly 4800 tons, the largest of which was a warehouse in Jersey City, which took 2400 tons. Jobs up for bids total more than 3000 tons. Awards follow:

JERSEY CITY, 2400 tons, warehouse for Seaboard Refrigeration Corporation, to Truscon Steel Co.

CHICAGO, 350 tons, warehouse for Houghton & Mifflin Co., to Concrete Engineering Co.

CHICAGO, 125 tons of rail steel, apartment building at 5441 Kenmore Avenue, to Calumet Steel Co.

CEDAR RAPIDS, IOWA, 420 tons, hotel, to Olney J. Dean & Co.

MILWAUKEE, 150 tons of rail steel, grain elevator for the Kurth Malting Co., to Calumet Steel Co.

ST. LOUIS, 885 tons as follows: 400 tons for Seven-Wall Garage, 300 tons for Rocky Branch sewer, and 185 tons for River Des Peres sewer, all to Missouri Rolling Mill Corporation.

AUBURN, CAL., 100 tons, Auburn school, to unnamed jobber.

SACRAMENTO, CAL., 154 tons, highway work in San Diego and Imperial Counties for the State Highway Commission, to unnamed firm.

OAKLAND, CAL., 200 tons, Masonic Temple, to unnamed San Francisco jobber.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

PHILADELPHIA, 216 tons, North East pumping station for city of Philadelphia; bids in.

BOSTON, 300 tons, Keith Memorial Theater.

BOSTON, 250 tons, power house, Harrison Square, Dorchester.

CHICAGO, 300 tons, warehouse for Peck & Hill Furniture Co.; Max Dunning, architect.

CHICAGO, 100 tons, garage at 420 Federal Street.

CHICAGO, 400 tons, apartment building at Pratt Boulevard and Lakewood Avenue; Rissman & Hirschfield, architects.

CHICAGO, 150 tons, building for the American Colortype Co.; Schmidt Brothers, general contractors.

CHICAGO, 387 tons, Midland Club; K. M. Bitzhum, architect.

CHICAGO, 235 tons, building for Row-Peterson Co.; Max Dunning, architect.

CHICAGO, 100 tons, Lithuanian Hospital; M. E. Zaldokas, architect.

CHICAGO, 100 tons, addition to Illinois Central Hospital; Schmidt, Garden & Erickson, architects.

EVANSTON, ILL., tonnage being estimated, junior high school; Childs & Smith, architects.

DECATUR, ILL., 160 tons, Wabash office building.

SAN FRANCISCO, 327 tons, improvement work on Golden Gate Heights; bids Sept. 15.

Notes On Publications

"Gear Problems and IXL Speed Reducers" forms the title of a 622-page catalog of gears and gearing issued by Foote Brothers Gear & Machine Co., Chicago. While essentially a catalog and listed as No. 200, this book contains so much data on gears and their uses that it partakes largely of the form of a treatise on the subject. Illustrations and tabular matter fill the greater number of pages, but there is enough text of an explanatory nature to bring out clearly the many points made. Designing of gearing of different types is given considerable attention, while numerous illustrations are given of application of gears for transmitting power or reducing speed. The section on engineering information covers more than 200 pages.

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A bibliography covering the literature of lubrication has been prepared by Nathan Van Patten, librarian of Queens University, Kingston, Ont. This book, which is issued by that institution, has been in preparation for three years. A careful effort was made to refer to every important article since 1900, relating to chemistry, testing and use of lubricating oils. There are more than 2000 references and the book contains about 200 pages. It is priced at $5.

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Circular of the Bureau of Standards No. 296, entitled "Research Associates at the Bureau of Standards," gives a brief story of the origin and the present status of the research associate plan, which has recently grown both in magnitude and variety of fields. Examples are given of actual cases with a brief account of the research problems. There is also a list of associates with the names of sustaining organizations and the problems under investigation.

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"Flow of Heat in Pistons" is the title of a 120-page publication of the engineering department of Purdue University, Lafayette, Ind. It is listed as Bulletin No. 25 and was prepared by H. A. Huebotter and G. A. Young. On analysis of internal combustion pistons it is shown that satisfactory distribution of metal in plain pistons is obtained by (1) making the barrel no longer than necessary to withstand the side thrust against the cylinder wall; (2) keeping the ring belt as short as possible without undue sacrifice of width; (3) using a flat head of uniform thickness; (4) using a tapered barrel section as thick as the head at the closed end and as thin as practicable at the open end; (5) using a fillet where the head joins the barrel.

A cumulative index to the proceedings of the National Safety Council for the years 1919 to 1925 inclusive has been issued by the Library and Information Bureau of the Council, 108 East Ohio Street, Chicago. This forms a 90-page book of fine print in one alphabetical list, indexed by name, topic, title, etc. It follows a similar cumulative index from 1912 to 1918, published several years ago.

Philadelphia Iron and Steel Market

(*Concluded from page* 647)

gium, 178 tons; cast iron pipe from Belgium, 267 tons; iron ore from Algeria, 5450 tons; chrome ore from Portuguese Africa, 5796 tons.

Old Material.—Almost every item in the appended list of scrap iron and steel went higher in price within the past week, interest being centered in heavy melting steel, 15,000 tons of which was sold to a leading consumer at $17.50, delivered. Two mills in this district are trying to buy this grade at $17, but brokers are holding for $18, which they attempted to obtain last week. There have been sales of pipe at $16 and $16.50, steel axles at $25 and $26, turnings for rolling mill use at $15 and $15.50, while railroad wrought, No. 1 cast and other grades are moderately higher than a week ago.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	$17.00 to $17.50
Scrap rails	17.00 to 17.50
Steel rails for rolling	18.00 to 18.50
No. 1 low phos., heavy, 0.04 per cent and under	21.00 to 22.00
Couplers and knuckles	19.50 to 20.50
Rolled steel wheels	19.50 to 20.50
Cast iron carwheels	17.50 to 18.00
No. 1 railroad wrought	18.50 to 19.50
No. 1 forge fire	15.00 to 15.50
Bundled sheets (for steel works)	14.00
Mixed borings and turnings (for blast furnace)	13.50 to 14.00
Machine shop turnings (for steel works)	14.00
Machine shop turnings (for rolling mills)	15.00 to 15.50
Heavy axle turnings (or equivalent)	15.50 to 16.00
Cast borings (for steel works and rolling mill)	14.50 to 15.00
Cast borings (for chemical plant)	16.50 to 17.50
No. 1 cast	18.50 to 19.00
Heavy breakable cast (for steel works)	17.50
Railroad grate bars	15.00
Stove plate (for steel works)	15.00
Wrought iron and soft steel pipes and tubes (new specifications)	16.00 to 16.50
Shafting	22.00 to 23.00
Steel axles	25.00 to 26.00

NON-FERROUS METAL MARKETS

The Week's Prices

Cents per Pound for Early Delivery

	Aug. 31	Aug. 30	Aug. 28	Aug. 27	Aug. 26	Aug. 25
Lake copper, New York	14.50	14.50	14.50	14.50	14.50	14.50
Electrolytic copper, N. Y.*	14.12½	14.12½	14.12½	14.12½	14.12½	14.12½
Straits tin, spot, New York	65.87½	65.87½	....	65.62½	65.50	65.25
Lead, New York	8.90	8.90	8.90	8.90	8.90	8.90
Lead, St. Louis	8.65	8.65	8.65	8.65	8.65	8.65
Zinc, New York	7.77½	7.77½	7.80	7.80	7.75	7.70
Zinc, St. Louis	7.42½	7.42½	7.45	7.45	7.40	7.35

*Refinery quotation; delivered price ¼c. higher.

NEW YORK, Aug. 31.—The markets are generally quiet and steady, with the exception of tin, which has advanced sharply. Buying of copper is moderate with prices slightly easier. There has been very little change in lead, either in buying or in quotations. The zinc market is somewhat higher, due to slightly improved demand.

Copper.—The week has been a quiet one with electrolytic copper quoted by most producers at 14.37½c., delivered, for the entire week. On one or two days last week, particularly Aug. 26 and 27, some metal was available at a range of 14.25c. to 14.37½c., and a few sales of limited amounts were made within that range. In general, buying by consumers has been fairly good, with inquiry yesterday and today more active. There has been some export business with the price today 14.35c., f.a.s. Lake copper is quoted at 14.50c., delivered.

Copper Averages.—The average price for Lake copper for the month of August, based on daily quotations in THE IRON AGE, was 14.53c., New York. The average price of electrolytic copper was 14.19c., refinery, or 14.44c., delivered.

Tin.—Straits tin sold yesterday at an equivalent of the highest price this year, or 66c., early in the day, with 65.75c. realized at the close. Sales for the week ended Saturday, Aug. 29, are estimated at 1100 tons, fairly evenly divided between dealers and consumers. The market in general is without special feature. It is, however, exceedingly strong from a statistical standpoint, but has reached a stage where any unfavorable news from almost any source would cause a reaction, due to the speculative phase of the market. Deliveries into consumption during August were about what was expected at 5870 tons, with 1829 tons in stock and landing on Aug. 31. Statistics as to the world's visible supply will be available in a day or two, but they are expected to show a decrease. Consumers are understood to be covered only for September and some of them for part of October, and they are buying only what is absolutely needed at present price levels. This fact is one of the strong elements in the general situation. Spot Straits tin is quoted today at 65.87½c., New York. London prices today were higher than a week ago, with spot standard quoted at £295 5s., future standard at £291 15s. and spot Straits at £302 5s. per ton. The Singapore market today was £297.

Lead.—The market is quiet but strong. Demand has been fairly steady. The leading interest continues to quote 8.90c., New York, as its contract price, with the outside market at practically the same level, or 8.65c., St. Louis. The market in the West is slightly easier than a week ago.

Zinc.—Little change from conditions prevailing a week ago is detected. There has been a fair amount of demand from galvanizers and prices have been steady with prime Western zinc quoted today at 7.40c. to 7.45c., St. Louis, or 7.75c. to 7.80c., New York. The price of ore continues high at $50 a ton, and this has continued to be an element of strength.

Nickel.—Ingot nickel in wholesale lots is quoted at 35c., with shot nickel at 36c. per lb. Electrolytic nickel is quoted at 39c.

Antimony.—The warlike conditions in China continue unfavorable and the market for Chinese metal is strong. Metal for spot and early delivery is quoted at

Metals from New York Warehouse

Delivered Prices per Lb.

Tin, Straits pig	67.00c. to 68.25c.
Tin, bar	68.75c. to 70.25c.
Copper, Lake	15.50c.
Copper, electrolytic	15.25c.
Copper, casting	14.75c.
Zinc, slab	8.50c. to 9.00c.
Lead, American pig	9.50c. to 10.00c.
Lead, bar	11.50c. to 12.50c.
Antimony, Asiatic	18.00c. to 19.00c.
Aluminum, No. 1 ingot for remelting (guaranteed over 99 per cent pure)	30.00c. to 30.50c.
Babbitt metal, commercial grade	30.00c. to 35.00c.
Solder, ½ and ½	41.00c. to 42.00c.

Metals from Cleveland Warehouse

Delivered Prices per Lb.

Tin, Straits pig	69.75c.
Tin, bar	72.75c.
Copper, Lake	15.00c.
Copper, electrolytic	15.00c.
Copper, casting	14.00c.
Zinc, slab	8.50c.
Lead, American pig	9.75c.
Antimony, Asiatic	20.50c.
Lead, bar	11.50c.
Babbitt metal, medium grade	22.50c.
Babbitt metal, high grade	75.25c.
Solder, ½ and ½	42.25c.

Rolled Metals from New York or Cleveland Warehouse

Delivered Prices, Base per Lb.

Sheets—	
High brass	19.37½c. to 20.37½c.
Copper, hot rolled	23.00c. to 24.00c.
Copper, cold rolled, 14 oz. and heavier	25.25c. to 26.25c.
Seamless Tubes—	
Brass	24.25c. to 25.25c.
Copper	25.00c. to 26.00c.
Brazed Brass Tubes	27.37½c. to 28.37½c.
Brass Rods	17.12½c. to 18.12½c.

From New York Warehouse

Delivered Prices, Base per Lb.

Zinc sheets (No. 9), casks	13.00c. to 13.25c.
Zinc sheets, open	13.50c. to 13.75c.

Non-Ferrous Rolled Products

Mill prices on bronze, brass and copper products, zinc sheets and lead full sheets have remained unchanged for more than a month.

List Prices Per Lb. f.o.b. Mill

On Copper and Brass Products, Freight up to 75c. Per 100 Lb. Allowed on Shipments of 500 Lb. or Over

Sheets—	
High brass	19.37½c.
Copper, hot rolled	23.00c.
Zinc	11.75c.
Lead (full sheets)	12.50c. to 12.75c.
Seamless Tubes—	
High brass	24.25c.
Copper	25.00c.
Rods—	
High brass	17.12½c.
Naval brass	19.87½c.
Wire—	
Copper	16.37½c.
High brass	19.87½c.
Copper in Rolls	21.87½c.
Brazed Brass Tubing	27.37½c.

Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of the Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide	37.50c.
Tubes, base	48.00c.
Machine rods	34.00c.

Rolled Metals, f.o.b. Chicago Warehouse

(Prices Cover Trucking to Customers' Doors in City Limits)

Sheets—	Base per Lb.
High brass	19⅝c. to 20⅝c.
Copper, hot rolled	23c.
Copper, cold rolled, 14 oz. and heavier	25¼c.
Zinc	12.25c.
Lead, wide	11.25c.
Seamless Tubes—	
Brass	24¼c.
Copper	25c.
Brazed Brass Tubes	27⅝c.
Brass Rods	17⅛c.

Old Metals, Per Pound, New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators, and the selling prices are those charged consumers after the metal has been properly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible	12.00c.	13.50c.
Copper, heavy and wire	11.75c.	13.50c.
Copper, light and bottoms	9.75c.	11.25c.
Brass, heavy	7.25c.	9.00c.
Brass, light	6.25c.	8.00c.
Heavy machine composition	8.75c.	10.125c.
No. 1 yellow brass turnings	8.50c.	9.25c.
No. 1 red brass or composition turnings	8.25c.	9.25c.
Lead, heavy	7.50c.	8.00c.
Lead, tea	5.75c.	6.50c.
Zinc	4.25c.	4.75c.
Sheet aluminum	17.00c.	19.00c.
Cast aluminum	17.00c.	19.00c.

15.25c. and higher, New York, duty paid, with future shipments at 16c.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c. per lb., delivered.

Non-Ferrous Metals at Chicago

AUG. 31.—This market is softer than a week ago, but there is still a fair amount of business being placed. The price of copper is off slightly and, although some sizable sales have been made for future delivery, the ready market is less active. Antimony is lower as the result of the arrival of foreign shipments. The old metal market is quiet and prices are unchanged. We quote, in carload lots, Lake copper, 14.60c.; tin, 66.50c.; lead, 8.75c.; zinc, 7.60c.; in less than carload lots, antimony, 16.50c. On old metals we quote copper wire, crucible shapes and copper clips, 10.75c.; copper bottoms, 9.75c.; red brass, 9.25c.; yellow brass, 8c.; lead pipe, 7.50c.; zinc, 5c.; pewter, No. 1, 35c.; tin foil, 43.50c. block tin, 52c.; aluminum, 17.75c.; all being dealers' prices for less than carload lots.

Significant Business Data

Loadings of revenue freight in the United States from Jan. 1 to Aug. 14 are reported at 32,474,487 carloads. This compares with 31,390,575 carloads in the corresponding period last year, which was a record up to that time. Every month this year except January has shown a gain over the corresponding month of 1925, until the present excess has reached almost 4 per cent.

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Total exports of automotive parts and accessories, exclusive of engines and tires, during the first six months of this year were $50,300,383, or 27.6 per cent of the total automotive exports during that period, amounting to $182,066,573, according to the automotive division, Department of Commerce.

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Production of beehive coke is reported by the United States Bureau of Mines to have amounted to 183,000 net tons in the week ended Aug. 21, compared with 163,000 tons in the preceding week. The total for the year so far has been 7,919,000 tons, compared with 6,200,000 tons in the corresponding period of 1925.

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Production of bituminous coal in the week ended Aug. 21 is reported by the United States Bureau of Mines at 10,552,000 net tons, making an aggregate of 342,309,000 tons for the calendar year so far. This is more than 10 per cent ahead of the calendar-year-to-date figures in 1925 and, with the exception of 1923, is the largest total reported in some years.

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Trade union members in the United States are reported by the Bureau of Labor Statistics to number 4,443,523, of whom 3,383,997 were in organizations affiliated with the American Federation of Labor. A survey recently completed by the Bureau forms the subject of an article in the August number of *Monthly Labor Review*.

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Total apparent consumption of babbitt metal in July, based on reports received by the Department of Commerce from 27 firms, was 5,015,464 lb., compared with 4,963,975 lb. in June and 5,184,196 lb. in July, 1925.

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Production of anthracite is reported by the Bureau of Mines to have been 1,782,000 net tons in the week ended Aug. 21, compared with 1,937,000 tons in the preceding week. Both figures are below the 2,155,000 tons of the corresponding week last year. Production of the calendar year to date has been 50,244,000 tons, compared with 58,531,000 tons last year. The present figure is the lowest since the strike year, 1922.

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Sales of natural abrasives by producers in the United States amounted in 1925 to 194,000 net tons, valued at more than $4,000,000, as computed by the Bureau of Mines from individual reports of producers. Production of emery abrasives in 1925 declined to 769 net tons, valued at $5,907, as against 2195 tons valued at $19,756 in 1924.

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Price stability is indicated by the index figures of the London *Economist*. For Aug. 1 the index stands at 4045, compared with 4035 on July 1, with 4029 on June 1, with 4053 on May 1 and with 4088 on April 1. The average of the five figures is 4050; none of the individual figures differs by as much as 1 per cent from this average. At 4045, the wholesale cost level is 84 per cent above 1914, when the index was 2200.

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One stone mason, a composition roofer, a bricklayer laborer, a house shorer, a cement mason's laborer and an electrical worker's helper—six men in all—working one day each in 1914, received $19.80 altogether. Today six men in identically the same trades receive $68, according to figures presented before the New York Industrial Survey Commission. The advance is 243 per cent, while the cost of living is about 60 per cent up. If 60 per cent be added to $19.80, the result is less than $32, and $68 is more than double $32.

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One small plant making steel is operating steadily in Brazil. It has one blast furnace, producing 25 tons of pig iron per day, with a second under construction. One open-hearth furnace of 5 tons is running, while another is being built, the second to be of 12 tons per charge. A 14-in. blooming mill and a 10-in. finishing mill are run by rope drive from an electric motor. About 20 tons of rolled products are turned out per day. These data come from a comprehensive report by A. O. Pierrot, acting commercial attaché, Rio de Janeiro.

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Retail prices of food in the United States, as reported by the Bureau of Labor Statistics, averaged 157 in July (1913 is base, at 100). This shows a fairly steady drop from the 167.1 of last November, but is only slightly below the 159.9 of July, 1925. The current figure is the lowest in more than a year.

FABRICATED STRUCTURAL STEEL

Letting of Staten Island-New Jersey Bridges, 30,000 Tons, Swells Week's Awards

Structural steel contracts awarded during the week, as reported to THE IRON AGE, totaled close to 55,000 tons, the largest in many weeks, but this large figure is accounted for by the letting of two contracts for bridges from Staten Island to New Jersey calling for 30,000 tons. About 5600 tons of plates for conduit work at Providence, R. I., was awarded. New work up for bids totals 28,500 tons, including 7000 tons for a penstock and pipe line near San Diego, Cal., 4000 tons for a medical building at Rochester, Minn., and 3000 tons for a Washington office building. Awards follow:

PROVIDENCE, R. I., 5663 tons of plates, 100 tons of steel castings and 150 tons semi-steel castings for conduit, to Lock Joint Pipe Co., Ampere, N. J.

PROVIDENCE, 300 tons, Old Colony Cooperative Bank, to Levering & Garrigues Co.

BRATTLEBORO, VT., 170 tons, highway bridge, to Boston Bridge Works.

QUINCY, MASS., 100 tons, Masonic Temple, C. A. Batson, Brockton, Mass., general contractor, to unnamed fabricator.

NEW YORK, 29,900 tons, Outerbridge crossing from Perth Amboy, N. J., to Tottenville, Staten Island, 17,200 tons, to McClintic-Marshall Co.; bridge from Elizabeth, N. J., to Howland Hook, Staten Island, 12,700 tons, to Bethlehem Steel Corporation; awards made by Port Authority of New York and New Jersey.

NEW YORK, 1200 tons, 30-story hotel on West Forty-second Street to Paterson Bridge Co.

NEW YORK, 900 tons, public school No. 127 at Elmhurst, L. I., to Harris Structural Steel Co.

NEW YORK, 160 tons, telephone building on Liberty Avenue, Brooklyn, to Eidlitz & Ross.

NEW YORK, 1300 tons (plates), floor for Manhattan Bridge, to American Bridge Co.

JERSEY CITY, N. J., 2500 tons, refrigerating plant for the Seaboard Terminal Co., to American Bridge Co.

PATERSON, N. J., 200 tons, public school No. 8, to Oltmer Iron Works.

ASBURY PARK, N. J., 450 tons, building for the New Jersey Utilities Corporation, to American Brown Boveri Electric Corporation.

ATLANTIC CITY, N. J., 300 tons, Jefferson Hotel, to Jones & Laughlin Steel Corporation.

BALTIMORE, 1000 tons, office building, to American Bridge Co.

WILKES-BARRE, PA., 300 tons, highway bridge, to Phoenix Bridge Co.

KINGSTON, PA., 400 tons, boiler plant for the Glen Alden Coal Co., to an unnamed fabricator.

CHARLESTON, W. VA., 200 tons, plant extension, Libby-Owens Sheet Glass Co., to Jones & Laughlin Steel Corporation.

PITTSBURGH, 1600 tons, Insurance Exchange Building, to McClintic-Marshall Co.

PITTSBURGH, 1400 tons, Long Finance Building, to McClintic-Marshall Co.

DAYTON, OHIO, 200 tons, Lincoln School, to Massillon Bridge & Iron Co.

DAYTON, 850 tons, Liggett Building, to Fort Pitt Bridge & Iron Co.

EATON, OHIO, 200 tons, school, to Massillon Bridge & Iron Co.

SHREVEPORT, LA., 1200 tons, Caddo County Courthouse, to Lukens Steel Co.

HOUSTON, TEX., 250 tons, miscellaneous tank work for the Texas Co., to Houston Structural Steel Co.

CHICAGO, 200 tons, machine shop for Wieboldt & Co., to the Vanderkloot Steel Works.

CHICAGO, 300 tons, Wieboldt Hall for University of Chicago, to Wendnagel & Co., Chicago.

GREEN BAY, WIS., 250 tons, machine shop for Northwest Engineering Works, to Wisconsin Bridge & Iron Co., Milwaukee.

SPRING GREEN, WIS., 250 tons, State highway bridge, to Lakeside Bridge & Steel Co., Milwaukee.

SEATTLE, WASH., 100 tons, logging skidders for the Lidgerwood Mfg. Co., to Wallace Equipment Co., Seattle.

PORT ANGELES, WASH., 240 tons, addition to the plant of the Washington Pulp & Paper Co., to Isaacson Iron Works, Seattle.

SACRAMENTO, CAL., 250 tons, factory for American Can Co., to Palm Iron Works, Sacramento.

BAKERSFIELD, CAL., 120 tons, power house for the Santa Fe Railroad, to Moore Dry Dock Co., Oakland.

SAN FRANCISCO, 1000 tons, transmission towers for the Great Western Power Co., to Pacific Coast Steel Co.

SAN FRANCISCO, 500 tons, Mission junior high school, to Pacific Coast Engineering Co., Oakland.

COLOMBIA, SOUTH AMERICA, 250 tons, pipe line for unnamed interest, to Pacific Coast Engineering Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

PROVIDENCE, R. I., 170 tons, Plantations Club.

ALTOONA, PA., 1500 tons, tank shop service building for Pennsylvania Railroad; general contract awarded to Building & Industrial Construction Co., Pittsburgh.

PHILADELPHIA, 400 tons, Fern Rock subway car shops.

PHILADELPHIA, 1800 tons, plant addition for the Edward G. Budd Mfg. Co.

BALTIMORE, 200 tons, highway bridge.

HOLMESBURG, PA., 600 tons, House of Correction.

WASHINGTON, 3000 tons, building for the Central Trust Co.

BRUNSWICK, GA., 200 tons, highway bridge.

NORFOLK & WESTERN RAILROAD, 750 tons, bridges.

CINCINNATI, 350 tons, building for St. Xavier College.

CINCINNATI, 150 tons, building for R. F. Johnston Paint Co.

CHICAGO, 1600 tons, Crawford Avenue bridge.

CHICAGO, 1500 tons, addition to four buildings for Crane Co.

PEORIA, ILL., 400 tons, building for Peoples Loan & Homestead Co.

FLORENCE, ILL., 1500 tons, highway bridge.

ROCHESTER, MINN., 4000 tons, building for Mayo Brothers.

LOUISIANA, MO., 1500 tons, highway bridge.

NEW ORLEANS, 1400 tons, additions to Poidrais dock sheds.

SAN DIEGO, CAL., 7000 tons, penstock and pipe line for the Southern California Edison Co. at San Diego; bids to be called soon.

MARTINEZ, CAL., 100 tons, small tank work for the Shell Oil Co.; bids in.

DAVIS, CAL., 200 tons, engineering building for the College of Agriculture, University of California, at Davis; Western Iron Works low bidder.

SAN FRANCISCO, 180 tons, St. Joseph's Hospital.

Pittsburgh Iron and Steel Market

(*Concluded from page* 640)

maker at $18.25. In a general way the market is quotable at $18 on this grade. The bid by mills that have a supply is $17.50, but dealers with short orders are paying 25c. to 50c. a ton more. It is hard to sell this grade at more than $18, but it is equally hard to get it for less. Prices are strong in producing centers, notably at Detroit, and with better returns to be had at some of the outside consuming points, notably at Buffalo, Pittsburgh is rather shut off from supplies. It is commonly expected that the Pennsylvania Railroad September list, bids against which close Sept. 1, will bring higher prices than are currently quoted. That list contains about 40,000 net tons, including 8100 tons of heavy melting steel and No. 2 wrought, 1400 tons of splice bars and 5000 tons of old rails. Blast furnace grades are slightly easier, but the list otherwise is not much changed from that of a week ago.

We quote for delivery to consumer's mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton	
Heavy melting steel	$17.50 to	$18.00
No. 1 cast, cupola size	17.00 to	17.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	17.50 to	19.50
Compressed sheet steel	16.50 to	17.00
Bundled sheets, sides and ends	15.50 to	16.00
Railroad knuckles and couplers	19.50 to	20.00
Railroad coil and leaf springs	19.50 to	20.00
Low phosphorus blooms and billet ends	21.00 to	21.50
Low phosphorus mill plates	20.50 to	21.00
Low phosphorus, light grade	18.00 to	18.50
Low phosphorus punchings	19.00 to	19.50
Steel car axles	22.50 to	23.00
Cast iron wheels	16.50 to	17.00
Rolled steel wheels	19.50 to	20.00
Machine shop turnings	13.00 to	13.50
Short shoveling turnings	13.50 to	14.00
Sheet bar crops	18.00 to	19.00
Heavy steel axle turnings	15.50 to	16.00
Short mixed borings and turnings	12.75 to	13.25
Heavy breakable cast	16.00 to	16.50
Cast iron borings	12.75 to	13.25
No. 1 railroad wrought	13.50 to	14.00
No. 2 railroad wrought	17.50 to	18.00
Railroad or automobile malleable scrap	18.00 to	18.50

PERSONAL

John McGeorge has been made head of the oven and conveyor engineering department of the McCann-Harrison Corporation, Cleveland. He is a life member of the American Society of Mechanical Engineers, a member of the Society of Automotive Engineers and of the Cleveland Engineering Society. He was at one time chief engineer for the Wellman-Seaver-Morgan Co., Cleveland, and recently plant engineer for the Oakland-Pontiac plant of the General Motors Corporation.

—

Edwin W. Smith has been elected treasurer of the H. B. Smith Co., Westfield, Mass., to succeed his father, the late Philip Smith. George E. Shepard is acting as assistant treasurer in place of Mr. Smith.

—

Charles H. Alvord, president Hendey Machine Co., Torrington, Conn., since 1919 and identified with the company since 1896, has resigned to devote himself to his private interests.

—

John J. Coleman, for many years Canadian manager of Thomas Firth & Sons, Ltd., Sheffield, England, has been appointed general manager of Thomas Firth & Sons, Inc., Hartford, Conn. He will continue the management of the Canadian business as heretofore.

—

J. R. Trott, formerly of the publicity department of the William L. Gilbert Clock Co., Winsted, Conn., has been appointed sales manager of the Abbott Ball Co., Hartford, Conn.

—

Ralph L. Shaw has been appointed Milwaukee district representative of the W. A. Jones Foundry & Machine Co., Chicago, to succeed Fred E. Holtz who resigned recently. He has been actively connected with the company's home office and factory for several years.

—

F. S. Murphy, Jr., has joined the service department of the Quigley Furnace Specialties Co., Inc., New York, and will cover the States of California, Oregon, Washington, Colorado, Texas, Utah and Wyoming, British Columbia and the Orient, with headquarters in San Francisco.

—

George E. Coursey, formerly of the engineering department of the Proctor & Gamble Co., and later with the Queen City Supply Co., both of Cincinnati, and E. E. Elsey, recently sales manager in the conveying machinery department of the Logan Co., Cincinnati, have been appointed special representatives in southern Ohio for the Chain Belt Co., Milwaukee.

—

A. M. Castle, president Zenith Furnace Co., Duluth, Minn., returned recently from a two months' motor trip in Europe.

—

Harry G. Dalton, of Pickands, Mather & Co., Cleveland, has been elected a director of the Ohio Bell Telephone Co.

—

William Kerber, formerly associated with George Maltby in the sales department of M. A. Hanna & Co., Cleveland, in the Buffalo district, has been appointed the company's resident agent in that territory. He has been in Buffalo since April, previously having been resident agent for the Hanna company in Cincinnati. Julian Bolton has been transferred to Buffalo from the home office and will be associated with Mr. Kerber.

—

Col. William A. Gaston has been elected a director of Dodge Brothers, Inc., Detroit. He is a director of American Telephone & Telegraph Co., Gillette Safety Razor Co., and other concerns.

—

J. N. Joyce, formerly associated with Johns-Manville, Inc., New York, has joined the Cleveland sales force of the Bridgeport Brass Co., Bridgeport, Conn.

—

Sydney Bauman has been appointed cashier in charge of finance and accounting for the Penn Jersey Steel Co., Camden, N. J.

—

Frank R. Huston, vice-president in charge of operations of the Donner Steel Co., Buffalo, has resigned. His plans for the future have not been announced. Mr. Huston was appointed to his present position several years ago; prior to that time he was auditor of the company. He served for many years with the Carnegie Steel Co. and the Cambria Steel Co. and was one of those who left the latter company with William H. Donner when he established the Donner Steel Co.

—

Norman F. Titus, San Francisco, has been appointed chief of the transportation division, Department of Commerce, succeeding Alexander V. Dye, who has been named as Commercial Attaché at Buenos Aires, Argentina.

—

Spencer B. Greene, Providence, R. I., has been appointed a trade commissioner and assigned to Santiago, Chile.

—

Julius Klein, director of the Bureau of Foreign and Domestic Commerce, will sail tomorrow from New York to conduct an economic survey of conditions in Europe. He will visit 27 cities.

—

Charles J. McPhillips, for several years with the machine tool department of Frank Toomey, Inc., Philadelphia, has become connected in a sales capacity with Herman L. Winterer, machinery dealer, 943-53 North Front Street, Philadelphia. In addition to his experience in the sale of machine tools and other equipment, he was engaged for 12 years in the purchasing and the production of machinery.

—

J. S. Nicholas has been appointed purchasing agent of the American Fork & Hoe Co., Cleveland. He had been connected with the company's purchasing department. Seven new members have been added to the board of directors. They are: A. W. Ferguson, J. S. Nicholas, C. S. Wagoner, Oliver Esselburn, and S. S. Chapin, all members of the company's organization in Cleveland; C. S. Chamberlain, Geneva, Ohio, and S. T. Harris, Ashtabula, Ohio.

—

W. A. Forbes, of the United States Steel Corporation executive staff, New York, has returned from a European trip.

—

Sydney T. Wiles, president and general manager Carbon & Alloy Steels Co., Ltd., Welland, Ontario, addressed the Welland Lions' Club on Aug. 23 on "Some Aspects of the Steel Industry."

—

Clarence R. Rupp, who has been auditor and purchasing agent of the New York Central Iron Works, Inc., Hagerstown, Md., since 1915, has resigned to become general manager of the Aetna Iron & Steel Co., Jacksonville, Fla. Mr. Rupp was connected with the Central Iron & Steel Co., Harrisburg, Pa., for several years before his connection with the Hagerstown company.

The Chicago office of Walter-Wallingford & Co., Cincinnati, which was discontinued on July 1, has been opened again at 1442 Straus Building. T. L. Wilson, formerly with the South Works of the Illinois Steel Co., but more recently resident manager in Chicago for Hickman, Williams & Co., will be in charge. Associated with him are E. R. Staat, for 20 years salesman and traffic manager for Hickman, Williams & Co., and B. A. Patch, a salesman for the same company for a number of years.

Central Alloy Steel Appoints Department Heads

A number of appointments of various department heads have been announced by the Central Alloy Steel Corporation, Massillon, Ohio, recently formed through a merger of the Central Steel Co., Massillon, and the United Alloy Steel Corporation, Canton. C. A. Ilgenfritz, who has been purchasing agent of the United Alloy corporation has been made director of purchases of the new company. George H. Freeborn, auditor of the Central Steel Co., becomes controller and George B. Harlan, controller of the United Alloy, becomes general auditor. R. B. Robinson, who has been in the traffic department of United Alloy, has been made general traffic manager. W. B. Knuff is named as general cost accountant and Charles B. Reese as general accountant.

R. H. Dougherty has been appointed assistant general manager; E. A. Portz, general superintendent; E. C. Smith, assistant general superintendent; Thomas McNally, superintendent of the open-hearth department; J. D. Donovan, superintendent of mechanical and electrical equipment; D. L. Imel, superintendent of mills; E. E. Cline, superintendent of the South and Stark sheet mills, and C. F. Kaufholz, superintendent of blast furnace and coke ovens of the alloy division; M. A. Grossmann, chief metallurgical engineer, and John Walsh, superintendent of the brick department.

L. G. Pritz, who was vice-president and general manager of the United Alloy Steel Corporation, is not a member of the new organization.

European Metallurgists to Appear on Foundry Program

The European foundry associations will be well represented at the technical sessions of the Detroit meeting of the American Foundrymen's Association by seven papers, two being presented in behalf of the Association Technique de Fonderie (the French foundry technical association), one as the official exchange paper of the Institute of British Foundrymen, one as exchange paper of the Association Technique de Belgique (the Belgian foundry association), two on behalf of the foundry association of Czechoslovakia and two from Germany. One of the German papers will be presented by Dr. W. Guertler before the meeting of the Institute of Metals Division of the A. I. M. and M. E. and it will be presented as a contribution from the Deutsche Gesellschaft für Metallkunde (the German institute of metals). The second German paper will be presented before an A. F. A. session as a contribution from the Verein Deutscher Eisengiessereien (the association of German foundries).

In addition to the official exchange paper of the Institute of British Foundrymen by John Shaw, a second paper from England will be presented by J. E. Hurst at the session on permanent and long-life molds.

High Cost of Building

Increasing cost and inefficiency of labor are charged with responsibility for high building costs, by Christian G. Norman of the Building Trades Employers' Association, New York. Addressing the New York Industrial Survey Commission, he listed 32 different classifications in the building trades, compared their 1914 and 1926 wage rates, and found an increase varying from 100 per cent (minimum) to 309 per cent (maximum). Stone masons and bricklayers at $16 per day each are the most highly paid of all the trades; in 1914 they received $4.80 and $6 respectively. Their increases are 233 and 167 per cent. Nine of the trades today carry a wage scale at least treble that of 12 years ago.

Figures for costs per cubic foot of 26 different types of buildings, worked out by Allen E. Beals, of Dow Service Daily Building Reports, show consistent increases over last year and the year before. In only three cases was no gain registered. The average of all, compared with 1924, showed 5.8 per cent increase, and in 13 cases the figure was higher than this.

OBITUARY

THEODORE H. WICKWIRE, chairman of the board of directors, Wickwire-Spencer Steel Corporation, Buffalo, died Aug. 29 in a Buffalo hospital. He was born at Cortlandville, N. Y., in 1851, and after attending school at the Cortlandville Academy and the Cortland Normal School, entered the retail hardware business with his brother. Selling his interest in the hardware business in 1875, he entered into the manufacture of wire cloth for window screens and other wire goods. He was the first to produce window screen wire cloth with double selvage and from hard drawn wire woven under new principles. In 1907 he organized the Wickwire Steel Co. and was its first president. Following the merger of the Wickwire Steel Co. and the Clinton-Wright Wire Co. in 1920, to form the Wickwire Spencer Steel Corporation, Mr. Wickwire became chairman of the board. He was a member of the American Iron and Steel Institute and of the Hardware Club of New York.

T. H. WICKWIRE

JOHN STRICKLER, identified with the foundry industry for 72 years, died Aug. 28 at his home in York, Pa. Beginning as an apprentice in the foundry of Slaymaker & Durkee in that city, when only twelve years old, he was retired in 1924 as superintendent of his plant. He was 86 years old.

CLAUDE F. CHARD, for several years Cleveland district sales manager of the Austin Co., Cleveland, was killed in an automobile accident on Aug. 13. He graduated from Purdue University in 1910, and before his association with the Austin Co. in 1918 was with the Westinghouse, Church, Kerr Co., New York. He was 37 years of age.

WILLIAM HOOD, for 30 years chief engineer of the Central Pacific and Southern Pacific railroads, died Aug. 26 in the Franklin Hospital, San Francisco. He was born at Concord, N. H., 80 years ago, but had been a resident of California for nearly 60 years. He was retired by the Southern Pacific Co. in 1921, having been chief engineer since 1885. The construction of the famous Tehachapi "loop," the building of the Lucin "cut-off," a causeway and trestle crossing the Great Salt Lake, the solution of the problem of the Siskiyous with an "S" line which crosses the Sacramento River 18 times and passes through 16 tunnels (one 3000 ft. long), and the completion of the line which cuts through Carriso Gorge to unite the Imperial Valley with San Diego, are among the engineering achievements to his credit.

WILLIAM H. MORSE, for many years a technical expert with the Morgan Construction Co., Worcester, Mass., but more recently employed in New York, died Aug. 28 in New York aged 54 years. He was born in Worcester and was graduated from Worcester Polytechnic Institute in 1895.

JAMES F. MANEELY, head of the John Maneely Co., 247 North Twelfth Street, Philadelphia, one of the largest distributers of wrought iron and steel pipe in the United States, died Monday, Aug. 30, at his home, 2017 North Broad Street, Philadelphia, from an illness brought on by ptomaine poisoning. Mr. Maneely succeeded to the business established by his father 57 years ago. He was 52 years old.

Exports Much Higher; Imports Off

Outgoing Movement Best in 30 Months—Sheets, Tin Plate and Pipe Lead in Gains—Imports One-Third Below June

WASHINGTON, Aug. 28.—With a total of 194,717 gross tons, American exports of iron and steel in July were the highest for any month since January, 1924, when the total was 247,942 tons. July exceeds by 268 tons the exports of 194,449 tons in April, 1926, the previous record since the January, 1924, movement. In contrast to outgoing shipments of iron and steel in July, imports for that month, amounting to 82,411 tons, were the lowest since last January, when they aggregated 79,067 tons. The July exports, compared with 159,506 tons in June, reflect a gain of 35,211 tons. The July imports, compared with 124,215 tons in June, the highest since November, 1922, showed a loss of 41,804 tons, a most unusual drop.

Increases in exports in July over June were principally in black steel sheets, tin plate and welded pipe. A substantial gain also was made in exports during the seven months ended with July, 1926, with a total of 1,223,300 tons over the corresponding period of last year, when the total was 980,957 tons.

Imports showed declines in July under June in all items except wrought and cast iron pipe, bolts, nuts, etc., and wire products. The gains in bolts, nuts and wire products were inconsequential. The heaviest declines were in pig iron, rails, structural shapes and steel bars.

In both aggregate tonnage and tonnages of most of the individual products of the heavier kinds, Canada continued the principal destination of exports in July. The total movement to that country in July was 79,596 tons. Of the 10,844 tons of plates exported in the month Canada took 9860 tons, while of the 79,095 tons

Sources of American Imports of Iron Ore

(In Gross Tons)

	July		Seven Months Ended July	
	1926	1925	1926	1925
Chile	110,800	70,000	797,800	563,200
Cuba	57,200	40,600	315,700	338,118
Spain	8,840	27,001	79,055	123,525
Sweden	.....	22,394	14,921	65,888
French Africa	35,331	9,000	204,537	118,995
Canada	1,094	1,497	13,985	4,871
Other countries	19,582	3,162	56,833	21,978
Total	232,847	173,654	1,482,831	1,236,575

United States Imports of Pig Iron by Countries of Shipment

(In Gross Tons)

	July		June,	Seven Months Ended July,
	1926	1925	1926	1926
British India	4,885	20,520	10,775	71,183
Netherlands	5,042	2,395	8,250	49,476
Germany	10,573	7,900	15,535	100,220
United Kingdom	8,724	3,546	8,275	88,795
Canada	230	35	91	3,248
Belgium	450	1,081	5	6,098
France	1,800	.....	.....	26,832
Other countries	502	180	175	4,513
Total	32,206	35,657	43,106	350,366

United States Imports of Iron and Steel Products by Countries of Origin

(In Gross Tons)

From:	July, 1926	January Through July	June, 1926
Austria	30	407	28
Belgium	17,172	122,582	29,501
Czechoslovakia	11	679	15
Finland	.....	799	.....
France	12,110	86,638	12,541
Germany	24,014	152,822	32,585
Italy	127	393	102
Lithuania	.....	1,530	.....
Netherlands	5,459	64,915	8,474
Norway	267	9,278	3,103
Poland and Danzig	344	602	259
Sweden	2,369	16,680	3,942
United Kingdom	9,652	106,961	9,909
Other Europe	1	41	2
Europe	*71,652*	*564,830*	*100,461*
Canada	5,825	39,639	5,203
Panama	.....	7,748	.....
Mexico	40	7,969	7,757
British West Indies	.....	402	.....
Cuba	.....	2,599	.....
Other America	.....	71	4
America	*5,865*	*59,429*	*12,964*
India	4,885	71,592	10,775
Other Asia	3	21	10
Algeria and Tunis	.....	7	.....
Total	82,411	695,880	124,215

Imports of Iron and Steel in Gross Tons

	Total Imports	Pig Iron	Ferro-alloys	Manganese Ore and Oxide*
Calendar year 1924	556,814	209,109	59,910	255,157
January, 1925	77,105	41,344	7,168	15,498
February	92,353	47,803	10,987	9,666
March	92,115	50,803	5,691	24,330
April	71,233	32,299	7,099	14,941
May	67,789	21,260	8,721	29,139
June	52,853	35,657	4,259	20,720
Fiscal year 1925	749,393	325,109	77,291	186,939
July	64,642	24,881	3,601	28,586
August	68,489	30,707	3,526	34,168
September	68,445	29,917	3,594	22,709
October	80,045	37,709	11,226	23,054
November	79,771	34,712	6,173	33,228
December	98,400	53,333	7,703	36,908
Calendar year 1925	943,240	441,425	80,269	265,688
January, 1926	79,067	48,428	3,055	27,498
February	100,273	59,122	5,194	27,239
March	93,107	54,825	4,606	27,891
April	107,626	54,359	6,949	59,666
May	108,731	57,211	3,002	21,633
June	124,215	43,106	5,277	31,315
Fiscal year 1926	1,080,781	528,305	64,108	383,407
July	82,411	32,206	1,702	34,133
Seven months	695,338	350,366	29,985	234,594

*Not included in "total imports." These figures are for manganese contents of the ore.

Exports of Iron and Steel in Gross Tons

	All Iron and Steel	Pig Iron	Semi-Finished Material
*Average, 1912 to 1914	2,406,218	221,582	145,720
*Average, 1915 to 1918	5,295,333	438,462	1,468,020
*Average, 1919 to 1923	3,078,724	122,837	149,218
Calendar year 1924	1,805,073	41,478	114,417
January, 1925	141,777	1,298	5,764
February	102,299	1,413	7,616
March	155,384	2,037	7,951
April	155,275	1,632	6,821
May	150,612	2,316	7,360
June	136,847	2,507	7,804
Fiscal year 1925	1,662,084	29,563	107,988
July	139,561	2,348	10,701
August	188,465	5,944	8,024
September	136,791	3,349	8,136
October	141,817	2,874	8,432
November	171,134	4,272	16,783
December	142,209	2,626	12,292
Calendar year 1925	1,762,571	32,674	108,681
January, 1926	174,585	1,662	4,288
February	157,187	1,478	5,615
March	169,433	1,489	6,050
April	194,449	2,010	7,167
May	173,418	1,107	9,880
June	159,506	1,369	5,714
Fiscal year 1926	1,948,560	30,587	103,271
July	194,717	2,595	14,558
Seven months	1,223,300	11,711	53,372

*Calendar years.

exported during the seven months, Canada took 45,352 tons. The Philippine Islands led in July exports of galvanized sheets, taking 3429 tons out of the total of 14,883 tons. Canada led for the seven months, taking 30,498 tons out of the 103,221 tons exported during that period.

Japan led both during July and the seven months as the destination of exports of black sheets, taking 8671 and 59,420 tons respectively out of the respective totals of 17,277 and 108,454 tons. It is interesting to observe also that Japan continues to buy American steel rails freely, and led in exports of this product for both periods, taking 5846 and 16,659 tons respectively. Canada was the leading buyer of tin plate in July, taking 3963 tons, followed closely by Japan, with 3476 tons. Japan, however, led Canada during the seven months, taking 27,412 tons.

Germany was the principal source of imports for both July and the seven months' period, supplying 24,014 and 152,823 tons respectively. Belgium ranked second for both periods, providing 17,173 and 122,582 tons respectively. Germany also led as the principal source of imports of pig iron for both July and the seven months, supplying 10,573 tons of the July total of 32,206 tons and 100,220 tons of the revised total of 350,366 tons for the seven months. The United Kingdom was second for both periods, providing 8724 and 88,795 tons respectively.

The countervailing duty which was applied to imports of pig iron from the Tata Iron & Steel Co. apparently is partially responsible for the sharp decline in imports of pig iron from India. For July imports from that country amounted to only 4885 tons and for the seven months they were 71,183 tons. In June 10,775 tons came in, while in July, 1925, no less than 20,520 tons of pig iron came from India.

Of the 8256 tons of steel bars imported in July, Belgium provided 4059 tons; France, 1047 tons, and Germany, 2330 tons. Of the 10,613 tons of structural shapes imported in July, mostly plain material, Belgium furnished 8187 tons and Germany 2258 tons. Rail imports for July were 3443 tons, of which Germany furnished 2774 tons; France, 377 tons and Belgium, 292 tons. Cast iron pipe imports for the month totaled 11,159 tons, of which France provided 7221 tons; Belgium, 2583 tons; Germany, 714 tons, and Canada, 641 tons.

Ocean Freight Increased from Continental Ports to India Oct. 1

HAMBURG, GERMANY, Aug. 12.—Increase in the conference freight rates from Hamburg, Bremen, Rotterdam, Antwerp, and Dunkirk to British India, effective Oct. 1, promise to place American gas and water pipe on a competitive basis with the British and Continental product unless similar advances are made in rates from the United States. These advances made by the British Indian, the Nederlandsche East India and the Hansa lines range from 20 to 100 per cent. The freight rate for tubes has been increased from the former rate of 25s. per ton to 50s. per ton from European ports to Bombay, Karachi and Calcutta and to 55s. per ton to Madras.

Following the recent advance in Continental prices of gas and water pipe by about 10 per cent the difference betweeen the European quotations and American prices was only about 6 to 8 per cent, c.i.f. Indian port. Calculated on a basis of the current market these new freight rates will increase delivered prices about 8 per cent, bringing them to the level of recent quotations by American sellers. The European prices f.o.b. Continental port continue unchanged at 68 per cent from list for galvanized and 76 per cent for black. It is expected that these discounts will be reduced before long to 67 per cent off on galvanized and 75 per cent off on black.

Exports of Iron and Steel from the United States

(In Gross Tons)

	July		Seven Months Ended July	
	1926	1925	1926	1925
Pig iron	2,595	2,348	11,711	13,551
Ferromanganese	55	....	333	4,080
Scrap	8,910	2,687	71,125	45,784
Pig iron, ferroalloys and scrap	*11,560*	*5,035*	*83,169*	*63,415*
Ingots, blooms, billets, sheet bar, skelp	13,783	8,820	42,956	40,103
Wire rods	775	1,881	10,416	14,827
Semi-finished steel	*14,558*	*10,701*	*53,372*	*54,930*
Steel bars	11,962	7,221	80,024	62,997
Alloy steel bars	716	224	3,291	2,528
Iron bars	412	294	2,559	3,080
Plates, iron and steel	10,844	6,000	79,095	59,820
Sheets, galvanized	14,883	10,000	103,221	98,711
Sheets, black steel	17,277	6,903	108,454	44,413
Sheets, black iron	1,067	1,826	12,052	8,021
Hoops, bands, strip steel	4,251	2,534	30,046	22,320
Tin plate, terne plate	20,197	10,918	118,539	88,697
Structural shapes, plain material	12,478	6,628	88,397	49,895
Structural material, fabricated	7,067	5,412	50,710	37,813
Steel rails	20,241	20,152	91,432	95,754
Rail fastenings, switches, frogs, etc.	4,251	4,037	24,413	20,705
Boiler tubes, welded pipe and fittings	25,956	21,444	160,272	131,077
Plain wire	2,420	2,887	21,862	22,041
Barbed wire and woven wire fencing	4,730	6,108	35,547	43,291
Wire cloth and screening	228	210	1,210	1,025
Wire rope	284	492	2,902	2,818
Wire nails	1,241	971	7,428	5,127
Other nails and tacks	767	788	5,143	5,432
Horseshoes	20	62	347	398
Bolts, nuts, rivets and washers, except track	1,252	1,576	8,321	9,998
Rolled and finished	*162,544*	*116,687*	*1,035,265*	*815,961*
Cast iron pipe and fittings	1,875	2,265	20,888	16,985
Car wheels and axles	1,336	1,390	9,875	12,693
Iron castings	865	938	5,341	5,503
Steel castings	562	326	5,221	3,036
Forgings	214	250	1,723	1,412
Castings and forgings	*4,852*	*5,169*	*43,048*	*39,629*
All other	1,203	1,078	8,446	7,022
Total	194,717	138,670	1,223,300	980,957

Imports of Iron and Steel Into the United States

(In Gross Tons)

	July		Seven Months Ended July	
	1926	1925	1926	1925
Pig iron	32,206	24,881	350,366	255,047
Ferromanganese*	620	2,903	23,611	44,528
Ferrosilicon	1,082	698	6,374	3,607
Scrap	2,969	4,147	35,066	54,415
Pig iron, ferroalloys and scrap	*36,887*	*32,629*	*415,417*	*357,597*
Steel ingots, blooms, billets and slabs	1,990	700	20,962	18,457
Wire rods	511	227	5,399	4,632
Semi-finished steel	*2,501*	*927*	*26,361*	*23,089*
Rails and splice bars	4,158	3,318	36,340	27,326
Structural shapes	10,613	6,533	58,434	52,904
Boiler and other plates	492	117	3,566	234
Sheets and saw plates	472	181	3,784	2,270
Steel bars	8,256	6,605	62,837	34,913
Bar iron	160	271	3,207	8,125
Hoops, bands and cotton ties	1,303	.....	12,193	.....
Tubular products (wrought)	4,255	12,954	15,787	37,488
Nails, tacks, staples	449	222	2,366	849
Tin plate	65	36	2,008	198
Bolts, nuts, rivets and washers	23	2	262	52
Round iron and steel wire	410	308	2,389	2,228
Barbed wire	29	.....	2,171	.....
Flat wire; strip steel	369	184	2,560	1,262
Steel telegraph and telephone wire	2	.....	121	.....
Wire rope and strand	389	166	1,575	1,482
Other wire	173	.....	1,222	.....
Wire cloth and screening	41	.....	237	.....
Rolled and finished steel†	*31,659*	*30,897*	*212,059*	*169,331*
Cast iron pipe	11,159	.....	39,959	.....
Castings and forgings	215	189	1,584	1,877
Total	82,417	64,642	695,380	551,894
Manganese ore*	34,133	28,586	‡234,594	115,611
Iron ore	232,847	173,654	‡1,482,831	1,236,575
Magnesite (dead burned and grain)	4,951	2,469	‡53,337	47,519

*Manganese content only, except shipments of ore from Cuba, which are stated in gross weight and amounted to 620 tons in July, 1926, and 23,809 tons during the seven months of 1926.

†Includes some cast iron pipe in 1925, under heading, "tubular products."

‡Revised figures of Bureau of Foreign and Domestic Commerce.

Machinery Exports Higher in July

Total for First Seven Months 16 Per Cent Above 1925—Imports Lower in July

WASHINGTON, Aug. 27.—Making a gain of $3,625,938, exports of machinery in July were valued at $34,123,992, against $30,498,054 in June. For the seven months ended with July, this class of exports aggregated $238,100,794, an increase of $33,172,983 over the corresponding period of 1925. Exports of power-driven metal-working machinery listed in THE IRON AGE table included 542 tools, valued at $637,583, in July, also a sharp increase in value over June, when the number was 591 and the value $506,440. The total value of exports of power-driven metal-working machinery in July was $1,318,556, while for the seven months' period it was $8,298,797. Exports of other metal-working machinery in July were valued at $371,787 and for the seven months, the value was $2,654,451.

Imports of machinery in July, with a value of those listed in THE IRON AGE table amounting to $1,327,876, showed a slight decline under June, when the value was $1,484,127, but for the seven months ended with July the value, $10,811,470, was almost 70 per cent above that for the correspondng period of last year, with a value of $6,561,143. In fact, the seven-month total exceeded the entire 12-month total ($10,404,337) for the fiscal year ended June 30, 1925.

Gains in exports of machinery in July over June were reflected in a number of heavy lines, including locomotives, internal combustion engines (except for automobiles), mining and quarrying machinery, oil well machinery and agricultural machinery. The only increases in imports were in electrical machinery and "other machinery" and in both instances they were

Imports of Machinery Into the United States
(By Value)

	July		Seven Months Ended July	
	1926	1925	1926	1925
Metal-working machine tools and parts	$44,323	$28,295	$279,446	$221,840
Agricultural machinery and implements	286,682	174,285	3,584,774	2,113,162
Electrical machinery and apparatus	85,862	43,869	536,892	476,297
Other power-generating machinery	298	1,423	3,729	5,198
Other machinery	751,620	533,146	5,202,539	2,658,339
Vehicles, except agricultural	159,089	135,870	1,204,090	1,086,307
Total	$1,327,874	$916,888	$10,811,470	$6,561,143

Machinery Exports from the United States
(By Value)

	July 1926	July 1925	Seven months Ended July 1926	July 1925
Locomotives	$369,749	$147,674	$3,086,022	$2,487,390
Other Steam Engines	71,840	185,198	530,996	1,039,934
Boilers	173,861	220,286	1,087,218	1,222,968
Accessories and Parts	181,528	208,404	947,117	1,068,774
Automobile Engines	815,233	1,067,230	9,054,516	10,728,600
Other Internal Combustion Engines	1,225,050	775,462	5,180,550	4,398,731
Accessories and Parts	45,345	319,753	197,690	2,415,602
Electric Locomotives	19,518	35,618	1,532,443	294,381
Other Electric Machinery and Apparatus	660,783	514,617	4,217,598	3,852,264
Excavating Machinery	381,709	745,718	2,888,397	2,112,287
Concrete Mixers	87,680	68,085	477,455	497,387
Road Making Machinery	187,221	132,622	1,167,420	945,833
Elevators and Elevator Machinery	456,783	225,750	3,015,471	1,299,228
Mining and Quarrying Machinery	1,159,280	961,913	9,948,764	5,992,621
Oil Well Machinery	987,853	1,030,998	8,021,731	5,771,665
Pumps	492,243	617,397	3,614,876	4,096,454
Lathes	144,398	243,423	1,031,649	1,247,985
Boring and Drilling Machines	55,942	69,208	479,204	397,839
Planers, Shapers and Slotters	35,153	29,695	216,577	275,836
Bending and Power Presses	115,731	78,882	891,139	371,465
Gear Cutters	50,061	105,973	295,241	519,727
Milling Machines	36,871	105,406	33,425	939,349
Thread-Cutting and Screw Machines	85,225	60,511	439,879	697,333
Forging Machines	107,310	34,531	563,468	171,992
Sharpening and Grinding Machines	148,336	282,026	1,298,207	1,937,446
Other Metal-Working Machinery and Parts	371,787	452,781	2,654,451	2,460,731
Textile Machinery	881,410	973,685	6,675,277	6,220,696
Sewing Machines	695,708	740,898	5,043,244	5,190,990
Shoe Machinery	119,548	98,726	799,908	848,845
Flour-Mill and Gristmill Machinery	46,226	80,438	541,999	527,402
Sugar-mill Machinery	271,312	734,070	1,453,270	3,091,188
Paper and Pulp Mill Machinery	280,778	143,623	1,651,573	834,410
Sawmill Machinery	71,799	48,892	627,708	435,014
Other Woodworking Machinery	75,974	131,293	721,005	905,743
Refrigerating and Ice Making Machinery	589,222	157,086	2,793,943	1,184,303
Air Compressors	391,992	352,702	2,902,327	2,274,092
Typewriters	1,401,296	1,382,190	11,446,412	10,984,981
Power Laundry Machinery	74,028	49,243	861,617	616,934
Typesetting Machines	319,596	296,086	2,152,708	2,127,183
Printing Presses	554,070	280,539	4,082,614	2,942,898
Agricultural Machinery and Implements	7,378,234	7,270,298	55,461,997	43,413,467
All Other Machinery and Parts	12,584,121	9,629,796	79,966,113	66,621,953
Total	$34,123,992	$31,102,791	$238,100,794	$204,927,811

United States Exports and Imports of Machinery

	Exports of Machinery	Imports of Machinery	Exports of Metal-Working Machinery
The year 1924	$317,040,424	$9,711,618	$8,644,444
1925			
January	28,117,952	803,829	845,986
February	23,215,776	814,703	707,445
March	33,932,473	999,237	1,364,930
April	33,468,086	1,167,999	1,694,761
May	32,164,865	861,655	1,330,914
June	27,121,123	935,487	1,003,325
Fiscal year	325,578,294	10,404,337	14,011,404
July	32,320,533	905,872	1,188,069
August	28,768,823	747,913	1,308,373
September	30,719,342	956,250	989,379
October	31,271,007	996,557	905,826
November	30,084,814	876,113	1,007,376
December	37,933,511	1,448,316	1,155,660
The year 1925	385,376,676	11,577,911	18,062,916
1926			
January	34,590,693	1,659,971	853,276
February	32,269,707	1,469,170	1,294,934
March	35,241,960	1,567,913	1,297,616
April	28,755,467	1,814,021	1,479,387
May	32,707,863	1,494,156	1,004,298
June	30,498,054	1,484,127	1,024,252
Fiscal year	393,306,426	15,413,144	16,046,267
July	34,123,992	1,327,874	1,318,556
Seven months	238,100,794	10,811,470	8,298,797

Exports of Power-Driven Metal-Working Machinery

	July, 1926		June, 1926	
	No.	Value	No.	Value
Engine lathes	12	$28,811	14	$26,727
Turret lathes	11	27,814	10	24,317
Other lathes	71	107,683	59	83,328
Vertical boring mills	3	918	4	2,971
Thread cutting and automatic screw machines	114	85,235	55	46,069
Knee and column type milling machines	35	93,430	30	56,706
Other milling machines	25	34,021	18	17,035
Disk-type gear-cutting machines	1	2,850	1	6,139
Other gear-cutting machines	18	47,311	5	18,287
Vertical drilling machines	17	21,209	24	8,811
Radial drilling machines	2	7,409	1	6,144
Sensitive drilling machines	28	3,286	106	4,397
Other drilling machines	62	23,120	85	7,274
Shapers and slotters	16	20,452	20	30,523
Planers	2	1,420	3	4,395
External cylindrical machines	46	92,992	51	89,506
Internal grinding machines	8	14,238	26	55,236
Metal-working tool-sharpening machines	71	15,563	59	18,496
Total	542	$637,583	591	$506,440

slight. But gains were marked in all lines when spread over the seven months of the current year.

Canada was the leading destination of exports of American locomotives in July, taking five, valued at $56,449, while for the seven months that country took 37 locomotives, valued at $510,234. Mexico took two locomotives, valued at $21,000, in July and 14, valued at $104,585, during the seven months. South American shipments included four locomotives, valued at $126,500, in July, while for the seven months South America took 81 locomotives, valued at $1,735,753.

Sewing machines to the number of 3776, valued at $180,426, were shipped to the United Kingdom during July, while for the seven months the number going to that country was 13,256, valued at $737,422. Mexico took 2122 sewing machines, valued at $72,245, in July and during the seven months took 27,563, valued at $940,181. Brazil took 1158 sewing machines, valued at $52,860, in July and during the seven months took 6900, valued at $261,157. Sewing machines shipped to Cuba in July numbered 1756, valued at $47,497, while for the seven months the number was 12,265, valued at $333,779.

The United Kingdom was by far the leading destination of exports of American typewriters, both in July and during the seven months. In July the United Kingdom took 4787 typewriters, valued at $235,600, and during the seven months took 34,794, valued at $1,905,241. Typewriters shipped to France in July numbered 2646, valued at $147,494, and during the seven months the number was 24,590, valued at $1,285,833. Typewriters shipped to Australia in July were 1064, valued at $62,275, and for the seven months the number was 7448, valued at $439,336. Canada took 1339 typewriters, valued at $74,613, in July and during the seven months took 8176, valued at $479,439. As in other months, shipments of American typewriters went to the four quarters of the globe in July.

The United Kingdom also was the principal buyer of American printing presses, both in July and during the seven months, taking 39, valued at $268,293, and 329, valued at $1,570,299, respectively. Australia took eight printing presses, valued at $72,630, in July, and during the seven months took 104, valued at $593,699.

Canada took 1958 harvesters and binders, valued at $358,657, in July and during the seven months took 2939, valued at $532,741. Harvesters and binders to the number of 1625, valued at $279,622, were shipped to Argentina in July; during the seven months the number was 2525, valued at $512,947.

BRITISH TRADE HEAVIER

Both Exports and Imports Gain; the Latter Increasing the Lead Established in June

WASHINGTON, Aug. 24.—Following the same course as in June, imports of iron and steel products into the United Kingdom during July continued in excess of exports, according to a cablegram received by the Department of Commerce from Acting Commercial Attaché Butler, London. The normal trade shows an import ratio of about 70 per cent of the exports. Both exports and imports in July showed increases over June. Exports in July totaled 243,861 gross tons (excluding scrap), as against 231,334 tons in June, while imports were 270,911 and 233,399 tons respectively.

Monthly exports during the first half of 1926 having averaged 316,800 tons, the July total records a falling off of 24 per cent. In 1925 the average was 310,900 tons per month; in 1913 it was 414,100 tons.

Exports of pig iron increased to 33,389 tons in July, compared with 25,591 tons in June. Plates and sheets rose by 3900 tons from 18,766 tons to 22,675 tons, and galvanized sheets by 14,000 tons from 39,768 to 53,602 tons. Tin plate exports recorded a loss of nearly 11,000 tons, about a 30 per cent decline. Rails lost 13,000 tons (67 per cent) and railroad material 8500 tons, but wrought tubes gained 5000 tons.

Imports of pig iron in July totaled 20,096 tons, 11,000 tons over the June figure of 9047 tons. Ingots, blooms, etc., accounted for 21,000 tons of the increase and steel bars gained 6300 tons, offset, however, by a 7000-ton loss in imports of iron bars. Of the total net increase in July of 37,512 tons, imports of pig iron and ingots accounted for 32,000 tons. They constituted 54 per cent of the total incoming movement. This was taken to indicate that the blast furnaces and steel works are exhausting their stocks and that rolling mills are turning more and more to foreign markets for supplies.

British Foreign Trade in Iron and Steel in 1926, Scrap Excluded

(In Gross Tons)

	Imports		Exports	
	June	July	June	July
Pig iron and ferroalloys	9,047	20,096	25,591	33,389
Ingots, blooms, billets and slabs	104,152	125,331	427	706
Iron bars, rods and angles	27,114	20,404	1,503	1,209
Steel bars, rods and angles	28,752	35,074	14,106	13,645
Structural steel	8,610	11,182	3,138	3,199
Hoops and strips	7,110	8,078	3,727	4,339
Plates and sheets	17,990	21,375	18,766	22,675
Galvanized sheets	.....	.....	39,768	53,602
Tin plate	.....	.....	35,651	24,765
Cast tubes, pipes and fittings	2,936	1,933	5,717	7,875
Wrought tubes, pipes and fittings	4,894	4,499	12,165	17,218
Rails	2,639	2,257	19,585	6,517
Other railroad material	879	446	21,488	12,976
Wire	5,329	5,658	4,172	6,446
Wire cables and rope	.....	.....	1,230	2,244
Wire nails and staples	5,829	5,513	170	311
Other wire manufactures	644	582	807	1,506
Nails, tacks, rivets and washers	935	812	1,398	1,567
Bolts and nuts, including screws for metals	630	939	1,964	2,803
Iron and steel castings	577	517	147	229
Iron and steel forgings	975	938	124	135
All other	4,347	5,277	19,690	26,505
Total	233,399	270,911	231,334	243,861

Few Furnaces in Operation

Since the end of June three more blast furnaces have been banked in the United Kingdom, leaving only eight active at the end of July, compared with 147 in operation at the end of April. Only 22 open-hearth furnaces were active at the end of May, against 275 at the end of April; since May, no figures have been available. Comparing the ratio of 45,700 tons of steel ingots and castings produced in May with 22 open-hearth furnaces active, the number in operation at the end of July would be about 16, it was stated, as only 32,100 tons was produced that month. It is reported that several Sheffield plants making special steels have resumed operations after being shut down for three months, but they operate electric furnaces chiefly and on small tonnages.

Commemorating the twenty-fifth anniversary of its establishment, the United Engineering & Foundry Co., Pittsburgh, has issued a silver anniversary number of "United Effort," with a cover in silver color. Photographs and sketches of the principal executive and operating officers form a large feature of the pamphlet. The various plants are illustrated, while much is made of the considerable number of employees now of 25 years or more standing in the companies which, in 1901, were joined to form the United company.

Julius Rosenwald, chairman Sears, Roebuck & Co., Chicago, has given $3,000,000 to the South Park Board, Chicago, for the rehabilitation of the Fine Arts Building in Jackson Park. It is proposed to convert the structure into an industrial museum similar to the museums of Vienna and Munich. Plans call for reproduction in miniature of the mechanical devices of industry, transportation and science.

NEW TRADE PUBLICATIONS

Steam Separator.—Andrews-Bradshaw Co., Pittsburgh. Catalog of 48 pages describing and illustrating the tracyfier, mechanical means for removing moisture from steam. Examples are shown of erosion of turbine blades subjected to wet and dirty steam and of other deleterious effects from the same source. Many photographs are illustrations of plants in which the company's equipment has been installed.

Steel Sprockets.—Dundore Mfg. Co., Reading, Pa. Stock list folder, 16 pages, presenting data on standardized steel plate sprockets for roller chain, cut teeth. The tables have been worked out for different pitches and different diameters of rollers, and give dimensions and prices for sprockets with various numbers of teeth. The same data are included for sprockets of 1-in. pitch for block center and twin roller chain. Dimensions and prices of cast iron and steel sprocket hubs are also given. The tables have been worked out for convenient reference.

Static Condensers.—Westinghouse Electric & Mfg. Co., East Pittsburgh. Condensers for power-factor correction on motor circuits of 220, 440 and 550 volts are described in leaflet 20,286, which discusses the application, construction and installation features of this type of condenser and also points out the advantages of power-factor correction at the motor. A table gives the corrective kva. for various ratings of 3-phase, 60-cycle type CS squirrel cage, induction motors, for horsepowers from ½ to 200.

Unit System for Burning Pulverized Fuel.—Combustion Engineering Corporation, 45 Broad Street, New York. Catalog describing and illustrating a system of using pulverized fuel under boilers and in other furnaces. It is well illustrated, both by diagram and halftone, showing applications and general arrangement of the different parts. The operation of the mill is explained in some detail.

Lathe and Drill Chucks.—Westcott Chuck Co., Inc., Oneida, N. Y. Catalog No. 520-A, 20 pages. Several types of the company's lathe chucks are illustrated and briefly described, specifications and list prices being also given. The drill chucks shown include the Little Giant and Oneida chucks.

Electric Hoists.—Roeper Crane & Hoist Works, Inc., Reading, Pa. Folder, form No. 118, describing the company's type R electric hoist. Capacities range from 500 to 6000 lb. and several types of suspension, including plain or geared trolleys, and several types of control are available.

Measuring Tools. — Van Keuren Co., 13 Copeland Street, Watertown, Mass. A 16-page catalog, descriptive of light wave measuring equipment, combination reference gages, microgages or utility gage blocks, plug gages for production, thread-measuring wires, micrometer laps, flat laps, lapped steel surface plates and square plug gages. There are also included information and data on measuring United States standard threads, Acme and 29-deg. worm threads, Whitworth, British standard fine, British association, and 60-deg. metric threads.

Tachometers.—Bristol Co., Bristol, Conn. Catalog No. 1700 gives an illustrated description of the various recording and indicating tachometers of the company. It covers 24 pages and contains list prices of the various instruments.

Foundry Equipment.—Whiting Corporation, Harvey, Ill. Several circulars have just been issued describing portable car hoists, cranes for freight handling and other miscellaneous cranes and foundry equipment, including a circular on "Meehanite."

Heat-Treating Equipment.—Stanley P. Rockwell Co., Hartford, Conn. Bulletin No. 2605 is a brief description of the advantages of the Rockwell dilatometer.

Malleable Castings.—Ohio Brass Co., Mansfield, Ohio. A circular announces further facts regarding the "Flecto process" for treating malleable iron and gives a list of the companies which are licensed to use the process.

Lubrication of Electric Cranes.—Shepard Electric Crane & Hoist Co., Montour Falls, N. Y., and Vacuum Oil Co., New York. A 16-page heavily illustrated pamphlet dealing with the correct oiling of various parts of electric cranes and hoists. The oil company collaborated with the crane manufacturer in working out the details shown.

Tooling Methods.—Warner & Swasey Co., Cleveland. The second of a series of booklets on "Modern Tooling Methods for Turret Lathes," which in 32 pages with illustrations deals very comprehensively with the subject. The articles were written by M. E. Lange, production engineer of the company.

Compressors and Pumps.—Pennsylvania Pump & Compressor Co., Easton, Pa. Two illustrated bulletins, one dealing with multi-stage centrifugal pumps and the other with direct-connected, synchronous, motor-driven air compressors.

Pneumatic Tools.—Ingersoll-Rand Co., 11 Broadway, New York. Pocket-sized handbook on pneumatic tools, 124 pages, leather bound, provided with sheaf of note paper in back for convenient memoranda. The book contains information on pneumatic tools and their uses in railroad shops. There is a table of contents and index for ready reference. The illustrations cover applications of air tools in locomotive boiler shops, tender repair, machine shops, steel car repair, wood work on composite and wooden cars, passenger car repair, and foundry work.

Turret Lathes.—Gisholt Machine Co., Madison, Wis. Two illustrated pamphlets, one describing the company's 3L and 4L models with fixed center turret, and the other the same models with cross-feeding turrets.

Structural Steel Shapes.—Carnegie Steel Co., Pittsburgh. The 1926 data book for engineers and designers, giving complete data on shapes, bars, rails, splice bars and track accessories, corrugated sheets, steel pipe, bolts, rivets, etc.

Roof Trusses.—Massillon Steel Joist Co., Canton, Ohio. Eight-page pamphlet describing light-weight curved roof trusses for use over buildings of various descriptions, particularly garages and others with considerable roof span. These are designed for spans up to 60 ft. and for load capacity up to 1000 lb. or more per lineal foot.

Nickel Cast Iron.—International Nickel Co., 67 Wall Street, New York. Bulletin No. 201, briefly describing the properties and applications of nickel and nickel-chromium cast iron, and Bulletin No. 202, presenting information useful to the foundryman, metallurgist or engineer in the improving of gray cast iron with nickel.

Fabricated Steel.—Colonial Iron Works Co., Cleveland. Looseleaf catalog, showing by illustration examples of work fabricated in the company's shop. Of especial interest is an attached leaflet describing "Colonial ready made, knocked down, sectional steel building," designed for quick erection.

Machine Tools and Forge Shop Equipment.—Champion Blower & Forge Co., Lancaster, Pa. Catalog No. 52, 136 pages, 8½ x 11, bound in cloth, adequately describing with full specifications and illustrations the varied products of the company. Included in the catalog are blowers, forges, tuyere irons, drills, chucks, lathes, saw machines, grinders, buffers, garage and arbor presses, motor stands, screw plates, taps, dies, tap wrenches, thread cutting machines, tire and axle shrinkers and welders, tire benders, power hammers, punches, shears, industrial fans of all sorts, disk wheels and cream separators.

Pointer Gages.—Hay Corporation, Michigan City, Ind. Folder describing the company's pointer gages of draft, pressure and differentials. The gages are designed to supply combustion pressures ranging from 1/10 in. to 30 in. of water.

High-Pressure Boiler Drums.—Roland Steel Co., 114 Liberty Street, New York. Catalog of 12 pages describing seamless steel drums and tubing, some of which is of exceptionally large size. This is made in Germany and is supplied in accordance with requirements of the A. S. M. E. boiler code. Lengths as great as 56 ft. and diameters up to 10 ft. 10 in. are shown in illustrations.

Direct-Current Generators and Exciters.—General Electric Co., Schenectady, N. Y. Two 4-page folders, 422 and 423, describing type CD of four poles, 3 to 100 kw. and 125 to 575 volts and type BD of two poles, ¾ to 2½ hp. and 125 and 250 volts. Speeds range from 1,750 downward, reaching 575 in the larger units.

Chains and Sprockets.—Webster Mfg. Co., 4500 Cortland Street, Chicago. Catalog of 96 pages describing various types of chains and sprockets made for a wide variety of service, including conveyors, power transmission and many other uses. Many types are illustrated, with price lists and other particulars.

Steel Wheels.—Carnegie Steel Co., Pittsburgh. Illustrated booklet on Carnegie light-weight wrought steel wheels for use under light-weight freight cars. These wheels are forged and rolled under the same conditions and by the same methods obtaining in the manufacture of the company's heavy-duty wheels, the light wheel

being designed, however, with smaller hub, lighter plate and thinner rim.

Combustion Control.—Smoot Engineering Co., 136 Liberty Street, New York. Bulletin 28 of eight pages describes control of air volume and pressure, and stoker speed, for traveling-grate stoker-fired boilers. Instructions are given for burning various types of fuel, while charts show the character of regulation.

Rivet Forges.—Johnstone Mfg. Co., 961 East Hennepin Avenue, Minneapolis. Leaflet No. 103 A-1 describes the types of rivet forges manufactured by the company, with emphasis on the oil burners of both high and low pressure with which the machines are equipped.

Air Filters.—Drying Systems, Inc., 1800 Foster Avenue, Chicago. Illustrated folder describing the company's Phoenix automatic constant-effect air filter.

Tunnel Machinery.—Sullivan Machinery Co., 122 South Michigan Avenue, Chicago. Bulletin No. 81-L, describing the company's new "Quickset" drill carriage for tunneling. The device is a recent invention of D. J. O'Rourke, one of the company's engineers, and is being used successfully in several large Western tunnel jobs.

Electric Overhead Cranes. — Whiting Corporation, Harvey, Ill. Bulletin No. 176 giving complete building clearances of the company's various types of overhead electric traveling cranes with capacities of from 10 to 100 tons and spans ranging from 20 to 100 ft. Circular devoted to a brief description of the Whiting drop-pit table, especially adapted to use in railroad repair shops.

Timber-Joint Plates.—Midwest Steel & Supply Co., Inc., Bradford, Pa. Leaflet describing the uses and installation of the company's "Bulldog" timber-joint plate with various charts and illustrations.

Mill Machinery.—Giddings & Lewis Machine Tool Co., Fond du Lac, Wis. Bulletin containing description, illustrations and specifications of the company's three types of internal grinders. Bulletin providing similar information on horizontal boring, drilling and milling machines of the table type with additional material on the possible attachments.

Contractors' Equipment.—Union Iron Works, Hoboken, N. J. Bulletin No. 63 containing descriptions of pile-driving and excavating machinery, grout mixers and ejectors, concrete buckets, cableway skips, air locks, tunnel shields and various other equipment for contractors, mines, railroads and industrial plants.

Transformers.—General Electric Co., Schenectady, N. Y. Bulletin GEA-424, 72 pages, dealing with the company's distribution and small power transformers. The greater part of the pamphlet is given over to charts, showing voltage ratings and taps of the various transformers.

Mining Machinery. — Webster Mfg. Co., 4,500-4,560 Cortland Street, Chicago. Catalog No. 44, describing the company's single roll and double roll coal crushers, with illustrations, diagrams and charts. Circular dealing with the company's car retarder, designed to prevent spillage when loading at the tipple. Leaflet devoted to a short description of the company's "Nelson Grizzly," designed to eliminate the difficulty of screening wet ore.

Pickling Equipment. — Duriron Co., Dayton, Ohio. Pamphlet of 20 pages devoted to equipment made of duriron and alcumite for handling pickling, plating and bright dipping acids. The bulletin shows uses of both materials, sometimes in the same set of equipment, explains why they are used and gives many details of equipment and uses.

Hoisting Machinery.—Sullivan Machinery Co., 122 South Michigan Avenue, Chicago. Brief pamphlet chiefly devoted to illustrations of the company's small portable hoists adapted to a large variety of industries.

Electric Meters.—Roller-Smith Co., 233 Broadway, New York. Bulletin No. 810, describing ammeters with varying ranges up to 1000 amp. of both the alternating and direct-current types.

Plant Flooring.—Irving Iron Works Co., Long Island City, N. Y. Leaflet illustrating and describing the "Vizabledg Safstep," an all-steel, non-slipping floor tread designed for use in industrial plants, being made by the company which makes Irving subway flooring.

Vibratory Screen.—Pittsburgh Coal Washer Co., Pittsburgh. A booklet, 12 pages and cover, illustrated, giving details as to the Pittsburgh vibratory screen, which is adapted for screening materials of all kinds. In this machine the entire surface of the screen cloth is vibrated, which, it is claimed, not only makes for a closer separation of the screened particles, but gives a complete cleaning of the individual meshes of the screen cloth.

Seamless Steel Couplings.—National Tube Co., Pittsburgh. An 8-page pamphlet on seamless steel couplings, now a commercial product of the company. The various sizes and styles of couplings are illustrated and the advantages of seamless steel couplings with electro-galvanized threads over those of welded couplings are pointed out.

Painting Machine.—Dunn Painting Machine Co., San Francisco. Descriptive advertising matter covering important improvements to the Dunn painting machine.

Corrosion in Plumbing Systems.—National Tube Co., Pittsburgh. Pamphlet discussing the freeing of water of its oxygen before it enters the plumbing system.

Wire Coilers.—Sleeper & Hartley, Inc., Worcester, Mass. Bulletin No. 254, describing the company's "Universal" coiler for the making of open coil wire springs. The machine has a wire range of from 0.034 in. to 0.135 in. and a coil range of from ¼ in. to 2 in. inside diameter.

Water Tanks.—Chicago Bridge & Iron Works, Chicago. Illustrated catalog, describing the company's water tanks for sprinkler service and general fire protection. Full specifications are given on Horton ellipsoidal-bottom and hemispherical-bottom tanks with capacities from 40,000 to 750,000 gal.

Swedish Steel.—Edgar T. Ward's Sons Co., Boston. Eight-page leaflet with the text taken from the company's forthcoming handbook for salesmen, telling of the manufacture and use of Ultra Superior Swedish steel imported from the Munkfors Works of the Uddeholms Co., Ltd., in a way calculated to interest particularly the purchaser.

Air Compressors.—Sullivan Machinery Co., 122 South Michigan Avenue, Chicago. Catalog No. 83-D, dealing with the company's portable air compressors, ranging in capacity from 110 to 320 cu. ft. per min. Full details and specifications are given and illustrations of the machines adapted to different working conditions.

Ventilating Appliances.—American Blower Co., Detroit. Bulletin No. 7003, containing description and full specifications of the company's American H. S. fans and blowers. Several pages are devoted to capacity tables and diagrams of the units adapted to varying sorts of ventilating in industrial establishments.

Boiler Feed Pumps.—Wilson-Snyder Mfg. Co., Pittsburgh. Bulletin W-79B, describing the company's long stroke boiler feed pumps of the duplex outside center, packed, plugger type for heavy duty. Specifications and diagrams are furnished for the units which vary in capacity from 73 to 656 gal. per min.

Chain Drives.—Boston Gear Works Sales Co., Norfolk Downs, Mass. Pocket-sized booklet of 36 pages cataloging the company's brass and steel sprockets and chains. Suggestions for the selection of chain drives are given and information is furnished regarding the load and speed for which the different sized drives are designed.

Seamless Steel Pipe and Tubing.—National Tube Co., Pittsburgh. An 8-page pamphlet describing the use of the product as staybolt sleeves, nipples, valve gear bushings and spring and brake gear bushings. Copper-bearing tubes are referred to for their corrosive-resisting properties and availability for exposed piping.

Refractory Cement.—General Refractories Co., 117 South Sixteenth Street, Philadelphia. Folder describing "Grefco," a chrome base cement said to be free from sodium silicate and other low fusing binders. The character of the cement, it is asserted, makes it particularly useful in the metallurgical industry because of its resistance to acid, as well as basic, slags. It is also recommended as a mortar and protective coat for boiler settings and furnaces in which coal ash slags are formed. In ceramic kilns it is said to protect the brick from erosion by gases.

Fire Brick.—Chicago Retort & Fire Brick Co., 208 South LaSalle Street, Chicago. A series of strikingly illustrated folders, printed in colors, describing the characteristics of "anti-flux" fire brick. Uniformity in size, mechanical strength, resistance to heat and long service are properties emphasized.

Rockwell Hardness Testers.—Wilson-Maeulen Co., Inc., 383 Concord Avenue, New York. Booklet under title of "Hardness Testing of Metals," containing extracts of letters from users of the Rockwell tester, these extracts being arranged under various subheads and serving to answer questions often asked the company. In this manner information relating to the speed, accuracy, range and adaptability of the machine, testing of dies and tools, sheets, strip, brass and other metals, is given by users of the equipment.

Automatic Milling Machine.—Brown & Sharpe Mfg. Co., Providence. Folder illustrating the use of the company's No. 21 automatic on a variety of work. Stock fixtures and attachments for the machine are also shown.

Machinery Markets and News of the Works

LARGE LIST AT CHICAGO

Illinois Steel Co. Inquires for 40 Tools for Its Works at Gary, Ind.

Price Advances Announced by Turret Lathe Manufacturers and Leading Maker of Gear Cutting Machines

THE Illinois Steel Co. has issued an inquiry for 40 machine tools, most of them of heavy duty type, for its works at Gary, Ind. This, together with other inquiry which has developed in the past week, encourages the machine tool trade to believe that an improvement in business will come in September.

Railroad buying has been fairly good. The Chicago & North Western and Burlington roads have completed purchases of their recent lists. The Santa Fe and Rock Island still have a few purchases to make. The Pullman Car & Mfg. Corporation has added to recent purchases an axle lathe, carwheel borer and 500-ton wheel press. Among the tools bought by the Chicago & North Western were a 90-in. driving wheel lathe and a 90-in. locomotive journal turning lathe. The Delaware & Hudson is in the market for tapping machines and a carwheel borer and the Lehigh Valley is inquiring for two portable boring machines. The Union Pacific is inquiring for a few grinders and several engine lathes.

The Chicago Board of Education has asked for prices on several tools.

Turret lathe and screw machine manufacturers have announced an advance in prices of about 10 per cent, effective at once, and a leading maker of gear cutting machines and shapers has also announced a similar advance. Other price advances are expected.

New York

NEW YORK, Aug. 31.

SEVERAL machine tool manufacturers have advanced prices about 10 per cent, effective at once. All of the turret lathe and screw machine manufacturers have announced a rise of this amount and a leading maker of gear cutting machines and shapers has also announced a similar advance. Business continues in moderate volume in this district and the total for August may be somewhat smaller than that for July.

The Delaware & Hudson Railroad is in the market for a carwheel borer and tapping machines and the Lehigh Valley has inquired for two portable boring machines. The Pullman Car & Mfg. Corporation, Chicago, has bought an axle lathe, a carwheel borer and a 500-ton wheel press from an Eastern company and the Chicago & North Western Railroad has bought a 90-in. driving wheel lathe and a 90-in. locomotive journal turning lathe.

Other machine tool orders of the week include the following: A 26-in. x 14-ft. engine lathe to a Berkeley, Cal., company; a 26-in shaper to a Pittsburgh company; a jig borer to a Pontiac, Mich., automobile plant; a jig borer to a Cincinnati machine tool manufacturer; a 16-in. geared head lathe with 7-ft. centers to the University of Chicago; a screw machine to a Latrobe, Pa., manufacturer; two vertical shapers and a jig borer to a Schenectady, N. Y., company.

The A. C. Horn Co., Bodine Street, Long Island City, manufacturer of waterproofing products, has awarded a general contract to the Willcox Construction Co., 1 Bridge Plaza, for a three-story addition, 90 x 100 ft., to cost $100,000 with equipment. Parker & Shaffer, 280 Madison Avenue, New York, are architects.

The Peerless Weighing Machine Co., 121 East Twenty-third Street, New York, has leased space in the building at 344 East Thirty-second Street, for expansion.

The Pompeian Bronze Co., Inc., 225 Fifth Avenue, New York, has purchased property at Meserole Street and Bushwick Place, Brooklyn, consisting of a two-story and basement structure, to be used for expansion.

Paul Lubroth, 303 East Fordham Avenue, New York, architect, has plans for a three-story automobile service, repair and garage building, 100 x 100 ft., on Inwood Avenue, to cost about $150,000 with equipment.

The Columbia Phonograph Co., Inc., 1819 Broadway, New York, manufacturer of talking machines, has concluded negotiations for the purchase of a new plant at Oakland, Cal., totaling about 75,000 sq. ft. of floor space, to be occupied as a factory branch and for distributing service.

The Ridgewood Garage, 222 South Nicholas Avenue, Ridgewood, L. I., will soon ask bids for a two-story service, repair and garage building, 50 x 300 ft., on St. Nicholas Avenue, to cost about $70,000, with equipment. H. C. Brucker, 2424 Myrtle Avenue, Brooklyn, is architect. George Pranz is head.

The Walthal Electric Co., Inc., 40 Flatbush Avenue, Brooklyn, has leased the four-story building at 116 Flatbush Avenue, corner State Street, for expansion. Walter Nussbaum is president.

The Post Office Department, Washington, has authorized the construction of an automobile service, repair and garage building to occupy the entire block bounded by Tillary, Adams, Washington and Concord Streets, Brooklyn, 119 x 200 ft., to provide for motor trucks and all other motor vehicle equipment for the general postoffice in Brooklyn. It is reported to cost in excess of $450,000 with equipment. Albert Firmin is postmaster at Brooklyn.

The Board of Education, Bayport, L. I., is said to be planning the installation of manual training equipment in a proposed two-story and basement high and grade school, estimated to cost $250,000, for which superstructure will soon begin. Wilson Potter, 22 East Seventeenth Street, New York, is architect.

The Seaboard Terminal Refrigerating Co., Jersey City, N. J., has filed plans for a new ten-story cold storage and refrigerating plant on block bounded by Eleventh, Twelfth, Monmouth and Cole Streets, estimated to cost $2,500,000 with equipment.

The Leslie Co., Lyndhurst, N. J., has been organized to take over the company of the same name with local plant at Grant and Valley Brook Avenues, manufacturer of railroad and marine equipment, pressure regulators, etc. The new company is disposing of a bond issue of $300,000, a portion of the proceeds to be used for extensions. S. Inglis Leslie, son of the founder of the company, will be president of the new organization; J. J. Cisek is vice-president, and J. M. Naab, secretary and treasurer.

Fire, Aug. 23, destroyed a portion of the plant of the Chillingworth Mfg. Co., West Side and Corbin Avenues, Jersey City, N. J., manufacturer of pressed steel gear cases and kindred equipment, with loss reported at $100,000 including machinery. It is planned to rebuild.

The Gamon Meter Co., 283 South Street, Newark, N. J., manufacturer of water meters, valves, etc., will build a one-story addition.

The receivership of the Monitor Car & Body Co., Hillside, Newark, has been dismissed, and the company will resume production under a new ownership continuing to specialize in motor bus bodies, lunch wagons, etc. A. En-

gene Bond and John Stillman, both of 501 Fifth Avenue, New York, have become financially interested in the concern.

The Borough Council, Tenafly, N. J., is asking bids until Sept. 13 for equipment for a sewage disposal works, including pumping units, air compressors, mechanically cleaned fine screen, settling tanks, meters, valves, etc. Fuller & McClintock, 170 Broadway, New York, and Watson G. Clark, Tenafly, are engineers.

The Public Service Electric & Gas Co., Terminal Building, Newark, has filed plans for a new electric power station at 209-11 Orient Street, Bayonne, N. J., to cost about $50,000 with equipment. The company also has plans for a new power substation on Atlantic Street, Carteret, N. J., to replace an existing station on Hudson Street.

The Dispend Oil Machine Co., Newark, has filed plans for a new plant at 299-301 Market Street to cost about $25,000.

Fire, Aug. 21, damaged a portion of the machinery and stock at the plant of the Manhattan Die Castings Corporation, 92-94 Twenty-second Street, Long Island City. An official estimate of loss has not been announced.

The Resonata Corporation of America, 1270 Broadway, New York, has been incorporated to manufacture a radio loud speaker built on a new principle. At present the product is being manufactured in four different plants and is being assembled and shipped from a factory at 70 Washington Street, Brooklyn, where the company has space in connection with that occupied by the Presto Machine Products Co. Henry G. Opdycke is president.

K. I. Clisby has been appointed New York representative of the Clark Controller Co., Cleveland, with office in the Woolworth Building.

Philadelphia

PHILADELPHIA, AUG. 30.

BIDS have been asked on general contract by the Leeds & Northrup Co., 4901 Stenton Avenue, Philadelphia manufacturer of pyrometers and other electrical measuring instruments, for an addition to its plant, to cost in excess of $50,000 with equipment. Morris & Erskine, 1716 Cherry Street, are architects.

The Commercial Truck Co., 300 Hunting Park Avenue, Philadelphia, has acquired the Electruck Corporation, 532 West Forty-sixth Street, New York, manufacturer of electric trucks, including machinery, parts, drawings, patents, etc., and all other assets, and will consolidate with its business. It is understood that operations will be consolidated at the Philadelphia works.

The Fretz Brass & Copper Co., Philadelphia, has been formed by officials of the Fretz-Lex Brass & Copper Co., 826 Arch Street, to take over and expand the present business. Application for a State charter will be made on Sept. 13.

The American-La France Fire Engine Co., Elmira, N. Y., manufacturer of motor-driven fire-fighting equipment, has taken bids on a general contract for a new one-story factory branch and service building at Westmoreland and Twenty-fifth Streets, reported to cost in excess of $100,000. Carson & Carson, 22 South Fifteenth Street, are architects and engineers.

The Board of Trustees, University of Pennsylvania, 3446 Walnut Street, Philadelphia, has awarded a general contract to Henry E. Baton, 1713 Sansom Street, for a three-story building to be known as the Moore School of Electrical Engineering, and is estimated to cost $150,000. Paul Cret, Otis Building, is architect.

The Continental Can Co., Syracuse, N. Y., will soon take bids for a new two-story plant at Canonsburg, Pa., 80 x 100 ft., to cost close to $100,000 with equipment. Francisco & Jacobus, 511 Fifth Avenue, New York, are architects. The company also has plans for a two-story and basement addition to its Syracuse works, to cost approximately $150,000.

Max A. Bernhardt, 721 Walnut Street, Philadelphia, architect, will soon begin the construction of an eight-story automobile service, repair and garage building, 70 x 125 ft., at 819-23 Walnut Street, to cost in excess of $200,000 with equipment.

The Provident Machine Co., Victory Building, Philadelphia, manufacturer of brake-lining machinery, etc., affiliated with the Cox Corporation, Wilkes-Barre, Pa., manufacturer of automobile bumpers, etc., has completed negotiations for the purchase of the plant and business of the Breeze Metal Hose & Mfg. Co., 22-46 South Sixth Street, Newark, N. J., specializing in the production of metal hose. Plans are under way for expansion in the Breeze plant; executive offices will be consolidated at that location, and manufacturing operations transferred from other places to the Newark works. Coleman S. O'Loughlin, heretofore president of the Breeze organization, will continue with the company. Joseph J. Mascuch is president of the consolidated company; John T. Mascuch is vice-president and treasurer, and L. V. Laplanch, secretary.

In connection with the proposed establishment of an aviation service between Camden and Baltimore, Washington and other points, the Camden Yellow Cab Co., Camden, N. J., is planning the construction of a hangar with shop facilities for parts and repair work, at its property on State Street, near the Cooper River. Frank O. Stem is president.

The Pennsylvania Gas & Electric Corporation, York, Pa., is disposing of a preferred stock issue of $1,000,000, a portion of the proceeds to be used for expansion. H. A. Clarke is president.

Fire, Aug. 26, destroyed several industrial plants in the vicinity of Upland, Chester and Fourteenth Streets, Chester, Pa., including damage to the works of the J. K. Land Machine Co., operating a general machine shop. The total fire loss for all interests is reported at $50,000; individual losses have been announced. The Land company plans to replace the damage.

The Read Machinery Co., York, Pa., manufacturer of bakers' and chemical machinery, parts, etc., has awarded a general contract to the Austin Co., for a one-story addition, 80 x 192 ft., to cost about $65,000 with equipment.

W. R. Hollingshead, Sr., and H. A. Clark, both of Binghamton, N. Y., have negotiations under way for the purchase of the former plant of the Universal Chain Co., Stroudsburg, Pa., and plan to equip the structure for the manufacture of electric washing machines and parts.

The East Penn Foundry Co., Macungie, Pa., has superstructure work in progress for an addition to its foundry. Other expansion is under way in different departments.

The Boiler Service & Repair Co., whose territory offices are at 1112 Liberty Building, Philadelphia, has been incorporated with capital stock of $10,000 to manufacture and repair boilers.

The W. H. Taylor Co., Allentown, Pa., has been appointed distributer for Quigley Furnace Specialties Co., Inc., New York covering that territory for all Quigley products, including Hytempite, acid-proof cement, Quigley refractory gun, and Triple-A protective solutions, etc., which will be carried in stock.

St. Louis

ST. LOUIS, Aug. 30.

BIDS will be asked in about 30 days by the Stinson Adding Machine Improvement Co., 321 South Grand Avenue, St. Louis, for its proposed two-story and basement plant, 60 x 240 ft., estimated to cost $80,000, with equipment.

The Board of Education, Topeka, Kan., contemplates the installation of manual training equipment in its proposed two-story and basement junior high school at Central Avenue and Grant Street, to cost $175,000, for which superstructure will soon begin. Thomas W. Williamson & Co., Central National Bank Building, are architects.

The Champlin Refining Co., Enid, Okla., has plans for enlargements in its local oil refinery and will proceed with work by day labor. The expansion is estimated to cost $90,000, with equipment.

The Century Electric Co., 1806 Pine Street, St. Louis, manufactufer of fans, motors, etc., has awarded a general contract to the Wimmer Contracting Co., Victoria Building, for a two-story top addition, 80 x 130 ft., estimated to cost $100,000. Klipstein & Rathman, Security Trust Building, are architects. E. S. Pillsbury is president.

The Freeborn Engineering Co., Mayo Building, Tulsa, Okla., has completed negotiations for the purchase of the plant and properties of the Lebanon Lead & Zinc Co., Lebanon, Mo. Plans are under way for enlargements, including equipment for development work. A new mining plant is also projected.

The E. T. Stanfield Co., Home Insurance Building, Little Rock, Ark., will soon begin work on a proposed hydroelectric power development in the vicinity of Pangburn, Ark., to cost $200,000 with machinery. A transmission line will be built to Heber Springs, Higgenson and vicinity, to cost an additional $100,000.

The Elliott & Barry Engineering Co., 1426 Olive Street, St. Louis, has tentative plans for a two-story plant, 55 x 150 ft., to cost about $35,000. James Barry is president.

The Central Power Co., 211 West Third Street, Grand Island, Neb., has plans for extensions and improvements in its local Riverside power house, estimated to cost $65,000, with equipment.

Mississippi County Drainage District, Osceola, Ark., O. M. Fairley, engineer, will soon take bids for equipment for

The Crane Market

THERE is a fair volume of inquiry in the field of overhead cranes for single pieces of equipment, but prospective purchasers are slow to close business and with many executives on vacation, action in some cases is not expected until after Labor Day. One of the largest current inquiries is a list of four cranes, three 10-ton and one 25-ton, all 4-motor, issued by Dwight P. Robinson & Co., 125 East Forty-sixth Street, New York, for shops of the Boston & Maine Railroad. In locomotive cranes, the New York Central Railroad has issued further inquiries for two more cranes, bringing the total to four, two 20-ton for New York, one 20-ton for Cleveland and a crawl tread crane. The list of cranes for the American Sugar Refining Co., Brooklyn, N. Y., being inquired for by Stone & Webster, Inc., is still pending.

Among recent purchases are:

Tidewater Oil Co., Bayonne, N. J., two 6-ton, 32-ft. span hand power cranes from Alfred Box & Co.

New York Steam Corporation, 280 Madison Avenue, New York, through Thomas E. Murray, New York, one 20-ton standard overhead traveling crane and a 3-cu. yd. bucket crane with perforated bucket for handling pulverized fuel ash, from a Northwestern builder.

Bethlehem Mines Corporation, Bethlehem, Pa., a 30-ton, 30-ft. span electric crane from the Northern Engineering Works.

Northern Construction Co., Quebec, a used 15-ton Brownhoist locomotive crane from E. P. Galer, 1060 Anderson Avenue, New York.

Sigretto & Son, Jersey City, N. J., a used 12-ton Northwest crawl-tread locomotive crane from E. P. Galer, New York.

Carnegie Steel Co., Clairton, Pa., a 30-ton, 45-ft. span overhead crane with 5-ton auxiliary for locomotive repair shop, from the Alliance Machine Co.

Pittsburgh Plate Glass Co., Ford City, Pa., a 5-ton, 61-ft. span overhead crane from the Milwaukee Electric Crane & Mfg. Co.

a project near Roseland, Ark., including pumping machinery and complete accessories. The installation will cost about $75,000.

The James R. Kearney Corporation, 4224 Clayton Avenue, St. Louis, of which James R. Kearney is president, has been incorporated and will engage in the manufacture of overhead and underground utility equipment such as solderless service connectors, anchors, expulsion fuse switches and expulsion fuse plugs. The company will be in production on most of these items by Jan. 1, 1927.

New England

BOSTON, Aug. 30.

AUGUST closes with little or no increase in bookings by New England machine tool dealers, but it is believed orders will materially increase before Sept. 15. Few new inquiries of importance were received the past week. Recent sales reported included turning equipment to a local shipyard, a Gardner grinder to a New Hampshire shop, a similar grinder and one of another type to a Boston firm, a 20-in. drill to a Greater Boston shop, three Consolidated presses and a Van Norman milling machine, all new tools. Used tools sold the past week were unimportant and went at very low prices.

In view of the depression in the textile machinery industry, it is interesting to note that cotton, silk and rayon mills are feeling the market for equipment. The Manville Jenckes Co. has just purchased 300 model K looms from the Draper Corporation, Hopedale, Mass.

Work has started on a plant addition to the Foster Machine Co., South Broad Street, Westboro, Mass. M. B. Harding, 6 Main Street, Worcester, Mass., is the architect.

The Deep Spring Water Co., Vine Street, Saugus, Mass., is having plans drawn for two one-story bottling plant units, 50 x 75 ft., and 35 x 118 ft., for which conveying machinery will be required. Plans are private. Charles M. Smith is president.

Work will soon start on a 50-ft. high coal pocket on Maple Street, Lowell, Mass., for the New York, New Haven & Hartford Railroad. Handling equipment is needed. Plans are private. The Roberts & Schaeger Co., 400 North Michigan Avenue, Chicago, has the general contract.

The Quincy Cold Storage Warehouse Co., 133 Commercial Street, Boston, is having plans prepared for a four-story, 75 x 150 ft. power house, to cost with equipment $1,000,000. F. L. Fairbanks, the company's engineer, is in charge of the plans.

William R. Walker & Son, architects, have submitted plans for a two-story and basement senior high school for West Warwick, R. I., which have been accepted. The school will have a manual training department. Specifications will be ready for bids in about six weeks.

The Devon Metal Goods Co., Inc., Milford, Conn., capitalized for $30,000, has incorporated under Connecticut laws with Walter D. Grout, West Haven, president.

The Stetson Textile Machine Corporation, Norwalk, has incorporated under Connecticut laws to begin a machinery manufacturing business. Thomas R. Stetson, Norwalk, is president.

The Alden Electric Co., 524 Westminster Street, Providence, R. I., has been incorporated to manufacture small electrical and radio apparatus. The company has purchased most of its equipment. H. A. McAvoy is president.

The B. F. Sturtevant Co., 200 Devonshire Street, Boston, blowers, etc., has leased a suite of 10 offices on the sixth floor at 60 State Street.

The New Haven Clock Co., Hamilton Street, New Haven, Conn., has plans for a two-story addition, 60 x 112 ft.

The Otis Elevator Co., Eleventh Avenue and Twenty-sixth Street, New York, plans the construction of a new factory branch, 42 x 80 ft., at Providence, R. I. John T. Swift is local manager.

The Massachusetts Gear & Tool Co., 30 Nashua Street, Woburn, Mass., has awarded a general contract to F. W. Greydon, 7 Lowell Street, for its one and two-story addition, 70 x 82 ft., to cost $45,000 with equipment.

The William Highton & Sons Co., Nashua, N. H., manufacturer of automobile locks and other hardware plans the early rebuilding of the portion of its plant destroyed by fire Aug. 17, with loss reported at $25,000, including equipment.

Fire, Aug. 24, damaged a portion of the oil refinery of the Cities Service Co., Quincy Avenue, East Braintree, Mass., with loss reported at $75,000 including equipment. It is planned to rebuild. Executive offices are at 60 Wall Street, New York. J. L. Cordell is general manager at the plant.

The Aircraft Corporation of America, Inc., 109 West Fifty-seventh Street, New York, has acquired property at Milford, Conn., and will erect a new parts manufacturing and assembling plant, to cost about $100,000 with equipment. Facilities will be provided for the employment of about 150 men.

Walter W. Gager, Waterbury, Conn., appointed receiver for the Bantam Ball Bearing Co., Litchfield, Conn., plans to continue production at the plant on a regular schedule pending the settlement of action brought against the company by the Welworth Automotive Co., New York, for $200,000 for alleged breach of contract.

South Atlantic States

BALTIMORE, Aug. 30.

OVENS, power equipment, conveying and other machinery will be installed in the six-story plant, 150 x 153 ft., to be erected at Baltimore, by the Ward Baking Co., Southern Boulevard and East 143rd Street, New York, estimated to cost $500,000, for which revised plans are being drawn by C. B. Comstock, 110 West Fortieth Street, New York, architect. It is expected to ask bids on a general contract about the middle of September.

The Maryland Meter Works, Guilford and Saratoga Streets, Baltimore, will hold in abeyance the proposed six-story addition to its plant, to cost approximately $250,000 with equipment. H. F. Doeleman, 507 North Charles Street, is architect and engineer.

The Baltimore Oil Co., 110 High Street, Baltimore, will soon begin work on a new two-story plant, 150 x 250 ft., for the manufacture of lubricating and other oils, estimated to

cost $80,000 with equipment. M. T. Ellicott is general manager.

The Mill Devices Co., East Franklin Street, Gastonia, N. C., has authorized the erection of a new one-story plant for the manufacture of textile mill equipment and supplies. Machinery now installed in a local building will be removed to the new plant and additional equipment provided. J. L. Gray is president.

The Goodyear Tire & Rubber Co., Akron, Ohio, has begun work on extensions in its plant at Cedartown, Ga., with main unit to be two-stories, 250 x 500 ft., with two wings. The entire project will cost in excess of $250,000 with machinery.

The Wilson-Hock Co., City Point, Va., machinery dealer, has inquiries out for a 20-in. drill press, for an electrical repair shop; also for a chain hoist, 1 ton capacity; a coil-spreading machine; 16-in. lathe with 10 ft. bed; portable air compressor, capacity about 7 cu. ft. per min.; coil-winding machine and machine for taping motor coils.

Johnson & Johnson, Inc., New Brunswick, N. J., manufacturer of surgical supplies, plans the construction of a steam-operated electric power plant at a proposed new mill at Gainesville, Ga. The entire project is reported to cost in excess of $250,000.

The Southern Railway, Washington, is said to have plans for the immediate construction of an electrically-operated pumping plant on the Yadkin River, near Spencer, N. C., to include the installation of two main pumping units, each with rating of 2500 gal. per min., and two auxiliary pumps; also steel water tank of 100,000 gal. capacity on tower. J. E. Todd, Charlotte, N. C., is engineer.

The Cole Iron Works, Atlanta, Ga., has inquiries out for a punch and shear suitable for architectural iron work.

The Railway Handle Corporation, Kenbridge, Va., is reported to be planning for the removal of its plant to Richmond, Va., where larger space will be secured and additional equipment provided. I. T. Wilkinson is president.

Hackley Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a keyseating machine; a 42-in. boring machine, suitable for carwheels, and a number of electric transformers, 10 and 15 kva. capacity.

The contract for elevators to be installed in the National Press Club Building, a 14-story office structure under construction at Washington, has been awarded to the Otis Elevator Co.

Chicago

CHICAGO, Aug. 30.

ALTHOUGH machine tool sales in August have been below the anticipations of the trade, the coming month is looked upon as one of fair promise. Inquiry during the week has been in fair volume and the bulk of this will come up for final action during September. The Illinois Steel Co. has issued a sizable list for its Gary works, and the Chicago Board of Education is also in the market for a few tools. The Chicago & North Western, and the Burlington have about completed purchases against their lists, but the Santa Fe and the Rock Island still have a few orders to place. The Union Pacific is inquiring for a few grinders and several engine lathes. Interest in used machinery is more active, but not many transactions are being closed.

The Chicago Board of Education list follows. These tools are for the Sullivan junior high school and are to be equipped with 440-volt, 3-phase, 60-cycle motors.

One 20-in. band saw.
One 6-in. jointer.
Two motor-in-head lathes, 12-in. x 55-in.
One two-wheel grinder.
One picture frame machine.

The Illinois Steel Co's. list, for which that company will furnish all electrical equipment, is as follows:

Three heavy-duty 24-in. crank shapers, belt drive.
One heavy-duty 30-in. crank shaper, belt drive.
Two 30-in. x 30-in. x 10-ft. belt-driven planers.
Two 36-in. x 36-in. x 10-ft. belt-driven planers.
One heavy-duty planer, 42-in. x 42-in. x 12-ft.
Two heavy-duty planers, 42-in. x 42-in. x 12-ft.
One heavy-duty planer, 60-in. x 60-in. x 20-ft.
One heavy-duty 21-in. crank slotting machine.
One 48-in. boring and drilling machine.
One heavy-duty 24-in. turret lathe.
Two heavy-duty 18-in. hollow spindle lathes.
Two heavy-duty 18-in. x 10-ft. 6-in. engine lathes.
Two heavy-duty 20-in. x 8-ft. engine lathes.
One heavy-duty 20-in. x 12-ft. engine lathe.
Five heavy-duty 24-in. x 10-ft. 6-in. engine lathes.
Two heavy-duty 30-in. x 12-ft. engine lathes.
Two heavy-duty 36-in. x 16-ft. engine lathes.
One 54-in. vertical turret lathe.
One heavy-duty 60-in. vertical boring mill.
One heavy-duty 20-ft. vertical boring mill.
One 36-in. Gleason gear cutter.
One 6-ft. extra heavy plain radial drill.
One heavy-duty 4-ft. universal radial drill.
One plain keyway miller, 18-in. x 6-ft.
One universal miller, similar to LeBlond No. 4.
One 200-ton reclining hydraulic press, 6-ft. between bars, 16-ft. from ram and resistance head.

The International Harvester Co., 606 South Michigan Avenue, Chicago, will erect a one-story brick and steel tractor assembly building, 60 x 500 ft., to cost $100,000. W. D. Price, 606 South Michigan Avenue, is architect.

The C. J. Dorff Mfg. Co., Aberdeen and Madison Streets, Chicago, manufacturer of screw machine products, will build a two story factory, 40 x 130 ft., to cost $30,000. Bids will be received by John K. Neebe, 3713 North Keddale Avenue.

The Chicago Screw Co., 1028 South Homan Avenue, Chicago, will build a one and two-story concrete factory, 116 x 124 ft., to cost $120,000. J. Hammond Co., 2234 Flournoy Street, is the general contractor.

The Moore Brothers Co., Joliet, Ill., is installing a new porcelain enameling furnace, the installation being made by the Ferro Enamel Supply Co., Cleveland.

The Royal Development Co., Butte, Mont., has secured permission for the construction of a hydroelectric power plant on Phelps Creek, Chelan County, Wash., the output to be used primarily for mining operations.

Miller, Bryant, Pierce & Co., Aurora, Ill., manufacturer of carbon papers, etc., has asked bids on a general contract for a new three-story and basement plant, 60 x 85 ft., to cost about $65,000. Lockwood, Greene & Co., 400 North Michigan Avenue, Chicago are architects and engineers.

The Luley Abattoir Co., 567 North Cleveland Avenue, St. Paul, Minn., has plans under way for a three-story and basement cold storage and refrigerating plant, to cost $150,000 with equipment. A. F. Gauger, Exchange Bank Building, is architect.

The W. F. Williamson Advertising Service, 3501-19 Addison Street, Chicago, manufacturer of metal signs, novelties, etc., has work under way on a new one-story plant, 120 x 260 ft., to cost close to $200,000 with equipment. Next spring it is purposed to construct a second unit, 75 x 135 ft., to cost about $100,000 with equipment.

The Reading Hardware Co., 211 West Lake Street, Chicago, will make extensions and improvements in its factory to cost about $25,000. Arthur B. Maiwurm, 1100 North Boulevard, is architect.

The Apex Motor Fuel Co., Chicago, has acquired the oil refinery of the Indian Refining Co., 3200 South Western Avenue, and will establish a plant at this location. Extensions and improvements are contemplated.

Pittsburgh

PITTSBURGH, Aug. 30.

LOCAL dealers have noted some increase in inquiry for machine tools the past week, but not much change in actual business, which, however, is considered good for this time of year. With the vacation season drawing to a close, it is expected that action will be taken soon on some business which has been pending the past month. The Pittsburgh & Lake Erie Railroad is yet to close on the hammer and journal box quartering machine it recently asked bids on.

Plans are being prepared by the Guarantee Liquid Measure Co., Rochester, Pa., manufacturer of gasoline pumping equipment, etc., for a one and two-story addition, 350 x 360 ft., to cost approximately $400,000, with machinery.

The Empire Oil Works, Inc., Oil City, Pa., has plans for enlargements in its refinery, including the erection of several buildings and the installation of new machinery, estimated to cost $125,000. A department will be installed for the production of lubricating oils.

The Suburban Electric Development Co., 5620 Penn Avenue, Pittsburgh, has filed plans for an addition to its plant to cost $154,500 with equipment.

The Bertha Consumers Coal Co., Chamber of Commerce Building, Pittsburgh, will make extensions and improvements in its plant on the Monongahela River, near Randall, W. Va., to include the installation of chutes, conveying, hoisting, loading and other handling equipment.

The Westchester Collieries Co., McCormick Building, Chi-

cago, John E. Stearns, president, plans extensions and improvements at the properties of the Wise Pocahontas Coal Co., Hensley, W. Va., recently acquired, to include the installation of conveying, hoisting, loading and other equipment.

The Island Creek Coal Co., Holden, W. Va., is completing plans for the construction of two or three electric power plants at its different properties in this section, reported to cost more than $90,000 with equipment.

The Board of Education, McKees Rocks, Pa., plans the installation of manual training equipment at its proposed two-story and basement high school in the O'Donovan Hill section, estimated to cost $300,000, for which revised plans are being prepared. J. H. Phillips, P. O. Box 977, Pittsburgh, is architect.

The Chicago Pneumatic Tool Co., 6 East Forty-fourth Street, New York, has begun razing of buildings on property adjoining its plant at Franklin, Pa., recently acquired, and plans the construction of additions to cost $100,000 with equipment.

The Libbey-Owens Sheet Glass Co., Nicholas Building, Toledo, Ohio, is said to be completing plans for the erection of a one-story addition to its plant at Charleston, W. Va., to cost $150,000 with machinery.

The Consolidated Expanded Metal Companies, located for 25 years at Braddock, Pa., are moving to their newly erected plant at Beach Bottom, W. Va. This new plant is one of the largest and best equipped expanded metal mills in the country, and will be devoted to the manufacture of metal lath, Steelcrete concrete reinforcement, Steelcrete armor mat for bank vault protection, Steelcrete road mesh, and Steelcrete mesh for machine guards. The new offices will be at Wheeling, W. Va., in the Steelcrete Building.

The Empire Oil Works, Inc., Oil City, Pa., will enlarge its plant and install equipment involving an expenditure of from $100,000 to $150,000. E. W. Chase is vice-president and general manager.

Detroit

DETROIT, AUG. 30.

PLANS are being considered by the Armstrong Spring Co., Flint, Mich., manufacturer of automobile springs, for a one-story addition to cost about $45,000 with equipment.

The Hunt Show Case Co., 5084 Loraine Avenue, Lansing, Mich., is considering plans for a new factory, 65 x 350 ft., to cost approximately $175,000 with equipment. The project is expected to mature within 60 to 90 days. H. J. Hunt is president.

Stockholders of the Bay City Tire & Rubber Co., and the Wildman Rubber Co., Bay City Mich., have authorized the sale of the plants and assets of the two companies, affiliated, in financial difficulties for a number of months. Burt D. Cady, Port Huron, Mich., is head of the committee in charge.

The Board of Education, East Grand Rapids, Mich., E. Mary Van Bloin, 735 Bagley Avenue, Grand Rapids, chairman, contemplates the installation of manual training equipment in its proposed new high school, estimated to cost $450,000, for which bids will be asked soon on general contract. Robinson & Campau, Michigan Trust Building, Grand Rapids, are architects.

The Bennett Brass Co., Greenville, Mich., has awarded a general contract to John Saurby, Rockford, Mich., for a one-story addition to cost about $20,000.

The Copeland Products Co., 630 Lycaste Avenue, Detroit, manufacturer of electric refrigerating equipment, is reported to be considering a one-story addition to cost close to $50,000 with equipment. Actual construction may be deferred for a number of weeks. Edward J. Browne is vice-president.

The Fisher Body Corporation, General Motors Building, Detroit, has plans for an addition to its steam-operated electric power house at Pontiac, Mich., to cost in excess of $400,000 with equipment. The enlarged station will also be used for service at the adjoining plant of the Oakland Motor Car Co., now in course of construction. The Fisher division will also construct another addition at its Pontiac works to cost approximately $90,000.

The Packard Motor Car Co., 1580 East Grand Boulevard, Detroit, has awarded a general contract to the Everett-Winters Co., 1651 East Grand Boulevard, for a three-story addition, 60 x 265 ft., for its aircraft engineering division. It is reported to cost in excess of $350,000 with machinery. Albert Kahn, Marquette Building, is architect. Alvan McCauley is president and general manager.

H. Eikenhout & Sons, Grand Rapids, Mich., roofing materials, etc., will rebuild the portion of their plant recently destroyed by fire, with loss estimated at close to $50,000 including equipment.

The Detroit Self-Printing Register Company, whose general office and factory are at 4332 Horatio Street, Detroit, has been reorganized and incorporated with a capital stock of $600,000. The company manufactures a self-printing automatic register.

The Owen Heat Unit, 4456 Cass Avenue, Detroit, has been incorporated with capital stock of $150,000 to manufacture domestic oil burners. W. J. Owen is president.

The T. B. Rayl Co., Detroit, wholesaler of heavy and shelf hardware, machinists' supplies, etc., has been reorganized as the Rayl Co., with a capital stock of $400,000. The same officers, directors, and stockholders are in control over the new company. Title to the real estate and lease holdings will remain with the T. B. Rayl Co.

Buffalo

BUFFALO, Aug. 30.

THE Federal Portland Cement Co., Inc., Buffalo, recently organized by officials of the Buffalo Slag Co., Ellicott Square, Buffalo, and the Standard Slag Co., Youngstown, Ohio, has work under way on a new mill at Lackawanna, N. Y., where 45 acres was recently secured. It is expected to have the plant ready for service in March, 1927. To provide for a portion of the work, the company is disposing of a bond issue of $800,000, making a total of $1,660,000 in securities outstanding and 20,000 shares of stock, no par value, the majority of which will be used for the construction and machinery. L. A. Beeghly, head of the Standard Slag Co., is president.

The Board of Education, Cortland, N. Y., is considering the installation of manual training equipment in a proposed two-story junior high school to cost about $200,000, for which preliminary plans are being drawn by C. W. Clark, Savings Bank Building, architect.

The United States Alloys Co., Sanders Settlement Road, Niagara Falls, N. Y., has awarded a general contract to the J. G. Davidson Co., Trust Building, for its proposed two-story addition, 60 x 94 ft., to cost approximately $35,000 including equipment.

A group of banking companies, headed by Hornblower & Weeks, and Cassatt & Co., New York, have secured a substantial interest in the Erie Steam Shovel Co., 1202 West Twelfth Street, Erie, Pa., totaling about $7,000,000 in common stock, and will exercise control in the management. Present officers, it is said, will remain. The company was formerly known as the Ball Engine Co., and since 1913 has been concentrating on steam shovel production. Expansion is planned by the new interests in this line, including larger output of a gasoline-compressed air shovel unit recently developed by the company.

The Republic Light, Heat & Power Co., Jackson Building, Buffalo, has authorized the immediate construction of a new pipe line from its plant on the River Road to Crittenden, N. Y., about 25 miles, estimated to cost $250,000. It will be used for gas transmission and will include the construction of a pressure regulator plant at Batavia, N. Y.

Cincinnati

CINCINNATI, Aug. 30.

BUSINESS booked in August by the majority of local machine tool manufacturers paralleled that in July. The renewal of buying by several automobile makers was responsible for the gain shown by a few builders, but this improvement was offset by the decline in orders reported by some companies. Industry in general is the source of most of the current sales. There has been an increase in the number of inquiries the past week, but some prospective purchasers already have said that they will not close for machinery until after the National Steel & Machine Tool Exposition in Chicago next month.

Machine tool production locally is spotty. Some plants are operating at a high rate and have been forced to run overtime with their present force of employees; others have cut down their output considerably in recent weeks.

An order for 16 lathes from a manufacturer in the Detroit district has been received by a local builder. An Eastern electrical company bought three radial drills and three large lathes. The Chicago & North Western purchased a 90-in. locomotive journal turning lathe and a 90-in. heavy driving wheel lathe, while the Lima Locomotive Works, Lima, Ohio, has taken a 64-in., 300-lb. wheel press. Among other purchases the past week are the following: Charles Mundt & Sons, Jersey City, a Long & Allstatter gate shear; Cooks Oil Co., San Francisco, a Morris 22-in. x 14-ft. geared-

head lathe; Flint Die & Tool Co., Flint Mich., a Bement 62-in. horizontal boring and drilling machine; Chicago & North Western, a Ransom No. 131 grinder, and a California company, a Brown & Sharpe screw machine.

The Kirk & Blum Mfg. Co., 2850 Spring Grove Avenue, Cincinnati, designing engineer and manufacturer of pneumatic dust collecting, ventilating and conveying systems, has doubled its plant facilities by the purchase of a building adjacent to its present factory. The need for larger space has arisen through the development of the company's contract manufacturing department, which now is producing sheet metal parts for manufacturers of refrigerators, wall safes, commercial truck bodies and washing machines. R. J. Blum is vice-president.

The United States War Department, Washington, is arranging for the construction of a new one-story airplane assembly plant at the Wright Field, Dayton, Ohio. Bids are being asked until Sept. 9, for a boiler plant at the same place, with complete equipment.

The Kentucky Hydro-Electric Co., Louisville, has secured permission for the construction of a hydroelectric generating plant at United States Dam No. 7, Kentucky River, Mercer County, Ky., and will proceed with work at an early date.

The Standard Sanitary Mfg. Co., Bessemer Building, Pittsburgh, and Fifth Street, Louisville, has asked bids on a general contract for a factory branch and distributing plant at Louisville, to cost $300,000 with equipment.

The Kentucky Utilities Co., Louisville, plans extensions and improvements in its plant and system in the vicinity of Paducah, Ky. It will also make extensions in its transmission system at Madisonville and Fredonia. Plans are under way for the installation of new pumps and auxiliary equipment at its waterworks at Shelbyville, Ky.

G. C. Mitchell, service director, Hamilton, Ohio, is asking bids until Sept. 15 for equipment for a municipal electric light and power plant, including two 3000 kw. turbo-generators, condensers, 50 kw. steam turbine-driven exciter set, three 500-hp. boilers, mechanical stokers, and auxiliary equipment. Alternate bids are asked on boiler units with pulverized fuel equipment, and Diesel engine-generating sets. The entire plant is estimated to cost $500,000.

The State Highway Department, Columbus, Ohio, will soon begin the construction of a one-story machine and repair shop with service and garage building for State motor trucks and cars, at Sidney, Ohio, 80 x 120 ft., estimated to cost $55,000. A similar plant will also be built at Ashland, Ohio, at like cost. H. D. Briggs, Ohio-Hartman Building, Columbus, is architect.

Cleveland

CLEVELAND, Aug. 30.

MACHINE tool business in this territory improved somewhat the past week. On the whole the volume of sales in August showed a gain over July. One local dealer reports August business the largest of any month this year. Turret lathes continue to move in fair volume, although orders are almost wholly for single machines. The Glen L. Martin Co., Cleveland, which is enlarging its aeroplane plant, during the week purchased three milling machines and two or three other tools. Baker Brothers, Toledo, Ohio, bought a jig boring machine. August has been a quiet month in the Michigan territory. Little business has come from the automotive industry and few inquiries are out from that source at present.

A Cleveland manufacturer of turret lathes has made an eight or nine per cent price advance effective Sept. 1. This follows advances made recently by some other turret lathe manufacturers.

The Ohio Brass Co., Mansfield, Ohio, will build a five-story administration building, 52 x 255 ft. Bids will be taken shortly.

The W. S. Tyler Co., Cleveland, has placed contract with the Dresser Co., 1082 the Arcade, for a two-story addition, 98 x 105 ft.

The Timken Roller Bearing Co., Canton, Ohio, has placed a general contract with the Middle States Construction Co., Columbus, Ohio, for two one-story factory buildings, 150 x 325 ft., and 80 x 325 ft., respectively.

The Toledo Pipe Threading Machine Co., Toledo, Ohio, has completed plans for a 40 x 100 ft. addition. Mills, Rhines, Bellman & Nordhoff, Ohio Building, are the architects.

The City Machine & Tool Co., Toledo, has leased 42,000 sq. ft. of additional space and will add new equipment to increase its production of dies and tools.

The White Motor Co., Cleveland, has awarded contract for a one-story addition, 55 x 198 ft.

The Cleveland office of the Morris Machine Works, Baldwinsville, N. Y., was moved Sept. 1 to 1367 East Sixth Street.

The Day-Lo Sign Company, Akron, Ohio, has been incorporated with a capital stock of $25,000 and has engaged in the manufacture of all kinds of electric sign displays.

The McCann-Harrison Corporation, Cleveland, manufacturer of air heaters, furnaces, ovens and dryers, has received the following orders: Complete oil-fired heating system for two new body ovens for the Cleveland Automobile Co., Cleveland, to be installed in its extension now being built; ovens, conveyors and direct oil-fired heating and ventilating systems for the high temperature enameling for the Chrysler Motor Corporation's Dayton, Ohio, plant; direct oil-fired heaters for burn-off ovens for the Dodge Brothers' automobile plant, Detroit; ovens, conveyors and direct oil-fired heating and ventilating systems for the new Oakland plant of the General Motors Corporation at Pontiac, Mich.

Indiana

INDIANAPOLIS, Aug. 30.

THE White Bear Corporation, Indianapolis, recently organized, care of the Indianapolis Chamber of Commerce, has plans under way for the establishment of a new local plant for the manufacture of a patented electrically-operated dish-washing machine. The company has secured permission to issue 6000 shares of stock, no par value, to carry out the initial project. James H. Bear is president of the new company and George W. Barnard of Ralston, Gates, Lairy, Van Nuys & Barnard, Indianapolis, attorneys, is treasurer.

The Link Belt Co., Indianapolis, has awarded a general contract to the John R. Curry Construction Co., Empire Life Building, for a two-story addition to its local Belmont plant, 80 x 100 ft., to cost about $45,000 with equipment. Headquarters are at 300 West Pershing Road, Chicago.

The Knapp Supply Co., Union City, Ind., heating and plumbing equipment, is planning for the removal of its plant and business to Muncie, Ind., where increased facilities will be provided. L. C. Huesman, Indianapolis, is president, and Wesley C. Hand, secretary, treasurer and general manager.

The Marmon Motor Car Co., 1101 West Morris Street, Indianapolis, has awarded a general contract to the H. K. Ferguson Co., for its one-story addition, 40 x 400 ft., including remodeling of a portion of the present plant, to cost about $50,000 with equipment. G. M. Williams is president.

The Indiana Refining Co., Lawrenceville, Ill., will soon begin work on its proposed storage and distributing plant at Indianapolis, including mechanical shops, to cost $100,000 with equipment. The structure will be one-story, 100 x 500 ft.

The Ellettsville Water Co., Ellettsville, Ind., is completing plans for extensions and improvements in its waterworks, including the installation of pumping machinery, 60,000-gal. capacity elevated steel tank and tower and auxiliary equipment, to cost $40,000. The Herr Engineering Co., Terre Haute, Ind., is engineer.

The Auburn Automobile Co., Auburn, Ind., has purchased the buildings and real estate of the Ansted Engineering Co., Connersville, Ind., for expansion.

Milwaukee

MILWAUKEE, Aug. 30.

PROSPECTS for September machine-tool business appear the best that local manufacturers have had since spring. The August volume of sales is found to be satisfactory considering that the month now closing is ordinarily the dullest of the year. Inquiry is now becoming more spirited, especially from a number of large automobile manufacturers. The industry as a whole is not particularly a heavy buyer, but the requirements of a few shops make up a large aggregate, nevertheless.

The Northwest Engineering Works, Green Bay, Wis., specializing in the manufacture of crawler type yard cranes and hoists, has undertaken a $200,000 extension program to increase the production area about 40,000 sq. ft. The general contract has been let to the Ludolf M. Hansen Construction Co., Green Bay, for replacing the original shop

with a modern building which will be an extension of the main machine shop erected three years ago. The Wisconsin Bridge & Iron Co., Milwaukee, designed the shop and is furnishing the structural steel, amounting to 225 tons. In addition to considerable miscellaneous machine tool equipment, several cranes will be installed.

The Standard Foundry Co., Racine, Wis., has let the general contract to Nelson & Co., local, for a one-story addition, 110 x 220 ft. Upon its completion, the present main foundry building will be converted into a cleaning room. The Standard company specializes in the production of cylinder castings for automobile, truck and tractor engines, and in addition to its own plant now being enlarged, is operating the foundry of the Case Plow Works, Inc., at Racine, under lease. Arthur R. Janes is president.

The Cargill Grain Co., Minneapolis, Minn., has let the general contract to James Stewart & Co., 343 South Dearborn Street, Chicago, for the construction and equipment of a 500,000-bu. grain elevator, with workhouse, at Green Bay, Wis. The estimated cost is $200,000. E. J. Grimes is general manager.

The Bark River Bridge & Culvert Co., Eau Claire, Wis., manufacturing steel culverts, has plans for a new factory and office building, 60 x 120 ft., designed by E. J. Hancock, local architect. It will cost about $40,000 complete.

The Liberty Foundry Co., 6600 State Street, Wauwatosa, Wis., suburb of Milwaukee, is building several minor additions and a new warehouse. The William F. Tubesing Co., local, is general contractor.

The Cream City Tool & Mfg. Co., Milwaukee, has been organized by Edward A. Tank, 221 Lloyd Street, and associates, to engage in the general manufacture of tools, dies, jigs, fixtures and mechanical appliances. Mr. Tank was associated with the General Tool & Mfg. Co., Milwaukee, for several years.

Pacific Coast

SAN FRANCISCO, Aug. 25.

THE Pacific States Electric Co., San Francisco, manufacturer of electrical equipment, has leased a new three-story and basement factory to be erected at Tenth and Bryant Streets by Walter H. Sullivan, Alexander Building. The plant is estimated to cost $300,000 with equipment. George Wagner, 118 South Park Street, is architect.

The Pioneer Paper Co., 5500 South Alameda Street, Los Angeles, has plans for a one-story addition to its mill, 60 x 210 ft., to cost about $75,000 with equipment. J. H. Plunkett is general manager.

The Oakland Lamp Works, Oakland, Cal., has awarded a general contract to Schnebly & Hostrawer, Fifth and Jackson Streets, for a one-story addition to cost about $25,000.

The Placer Union High School District, Auburn, Cal., will build a vocational shop in connection with a proposed school group, estimated to cost $200,000.

The Union Iron Works, 217 East Montgomery Street, Spokane, Wash., has filed plans for a one-story forge and blacksmith shop.

The Prairie Power Co., Prairie City, Ore., has been granted permission for a proposed hydroelectric power plant on Strawberry Creek, Grant County, on which work will begin soon.

The Southern Pacific Co., 65 Market Street, San Francisco, will soon begin the construction of a new engine house with repair facilities at Klamath Falls, Ore., to cost about $65,000.

The C. F. Braun Co., Alhambra, Cal., manufacturer of heaters, valves and kindred equipment, has plans for a one-story addition to cost about $20,000.

The Board of Directors, Turlock Irrigation District, Turlock, Cal., has approved plans for the installation of additional equipment at the San Pedro power plant, comprising two 7500 kw. generating units and auxiliary equipment.

Plans have been filed by the Santee Garage Co., 338 South Santee Street, Los Angeles, for a six-story service, repair and garage building, 100 x 150 ft., to cost about $300,000 with equipment.

The Kroehler Mfg. Co., 1636 Bryant Street, San Francisco, manufacturer of furniture, has awarded a general contract to MacDonald & Kahn, 130 Montgomery Street, for a three-story and basement factory to cost $160,000 with equipment. L. H. Nishkian, 525 Market Street, is architect and engineer.

The City Council, Tombstone, Ariz., is asking bids until Sept. 13, for equipment for a municipal electric light and power plant, including one 50 kva. and one 25 kva. generating units, with auxiliaries; also equipment for a proposed municipal ice-manufacturing plant, as per plans on file at the office of R. V. Saunders, city clerk. A contract recently let to Jules Vermeisch, engineer, Phoenix, Ariz., has been rescinded.

Gulf States

BIRMINGHAM, Aug. 30.

THE New Ice Co., 1008 Indiana Avenue, Wichita Falls, Tex., is completing plans for the erection of a one-story plant with an initial output of 60 tons per day, estimated to cost $100,000 with machinery. William McKemie, Jr., heads the company.

The Interstate Natural Gas Co., Inc., Baton Rouge, La., represented by Dart & Dart, New Orleans, attorneys, recently organized under Delaware laws, has arranged for a bond issue of $10,500,000, a portion of the proceeds to be used for the acquisition of gas properties in the Monroe, La., gas field, and the construction of a pipe line from such place to Baton Rouge, installation of compressing stations and other construction.

L. C. Reynolds, Greenville, Tex., will erect a one-story foundry, 50 x 100 ft., for the production of grate bars and other iron castings.

W. S. Brown, 807 Delaware Avenue, Dallas, Tex., is planning for the purchase of a horizontal bench drill.

The Prairie Pipe Line Co., Kingsmill, Tex., is completing plans for the construction of a pipe line from its local tank farm, now in course of building, to a connection with its main line near Ringling, Carter County, Okla., about 250 miles, estimated to cost $2,000,000 with equipment.

The Trinity Portland Cement Co., Dallas, Tex., will soon begin the construction of a new mill at Houston, Tex., to cost close to $1,500,000 with machinery. Four cylindrical kilns, each 11 ft. diameter, will be installed. O. B. Bartholomew is chief engineer.

The Board of Sewage and Water Commissioners, 526 Carondelet Street, New Orleans, is asking bids until Oct. 15 for electric transformers and accessories for power house No. 2.

The Texas Central Power Co., Frost Building, San Antonio, Tex., is considering plans for extensions in its power house at Corpus Christi, Tex., with the installation of a 45,000 hp. turbo-generator, boilers and auxiliary equipment. The company also plans enlargements in its auxiliary steam-operated electric power plant at Kingsville, Tex. E. B. Neiswanger is general manager.

The City Council, Celeste, Tex., has authorized the installation of centrifugal pumping equipment, air compressor and other equipment in connection with proposed extensions and improvements in the municipal waterworks, estimated to cost $55,000. Koch & Fowler, Central Bank Building, Dallas, Tex., are engineers.

The Lewis-Hager Sheet Metal Works, 215 Indiana Avenue, Wichita Falls, Tex., which has been engaged in business for some time as a partnership, has been incorporated with a capital stock of $10,000.

Canada

TORONTO, Aug. 30.

IMPROVED demand for machine tools featured the market during the week. Sales, however, were chiefly confined to single tools, but inquiries are appearing for as many as a half dozen. Dealers and builders look for considerable improve-

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Editorial

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New York, 239 West Thirty-ninth St., W. C. Sweetser, Chester H. Otse
San Francisco, 320 Market St.....W. A. Douglass

ment in sales during the next few weeks due to their displays at the Canadian National Exhibition which opened in Toronto Aug. 28 and will continue for two weeks. In addition to the Canadian demand for machine tools, builders in the Dominion are being asked to bid on some fairly good lists from Australia, New Zealand and other countries.

D. H. Ross, trade commissioner at Melbourne, Australia, has sent to the Department of Trade and Commerce, Ottawa, Canada, the following list required for the Victorian Government Railways, Melbourne, with dates of closing: One turret lathe, including all necessary equipment, closing date Sept. 29; one power-driven concrete slab making machine, closing date Oct. 27; one 100-ton wrecking crane, closing date Nov. 3; one rotary converter or rectifier, together with switching equipment for automatic operation, closing date Dec. 1.

John C. Mundell & Co., Ltd., Elora, Ont., is in the market for a left hand 10 x 28 Wheelock engine, second hand preferred.

The Citadel Brick Co., Quebec, will start work this fall on the erection of a manufacturing plant at Beauport to cost approximately $1,000,000.

The Fort William Paper Co., Fort William, Ont., has started work on a $300,000 addition to its mills.

Contracts have been awarded in connection with a $30,000 addition to the plant of the Johnson Wire Works, 50 Dagenais Street, Montreal, the structural steel to be supplied by the Dominion Bridge Co., Ltd., 285 Beaver Hall Hill.

Everett Crosby, Yarmouth, N. S., will rebuild his planing mill and wood-working factory recently destroyed by fire and is interested in complete new equipment.

Western Canada

The West Kootenay Power Co., Bonnington Falls, B. C., is planning for an increase in its power development on the Kootenay River. Present installation consists of two units of 20,000 hp. each, and a third of 19,000 hp. is to be added.

The East Kootenay Power Co., has started work on the installation of an auxiliary steam plant at Trail, B. C. It is expected that the new plant will have a capacity of 5000 kw., and will be in operation next winter.

According to T. Cuthbert Anderson, vice-president Central Manitoba Mines, Ltd., Winnipeg, the company will start work this winter on the first unit of a 250-ton mill at its Kitchener property.

The East Kootenay Power Co., is having plans prepared for the erection of a power house at Crow's Nest Lake, Alta., to cost $1,000,000.

Hilton Brothers, Ltd., 126 Lombard Street, Winnipeg, manufacturer of pipe and boiler coverings, has awarded contracts in connection with a $75,000 addition to its plant.

Foreign

THE Scrocabana Railway Co., Sao Paulo, Brazil, has plans under way for the electrification of its line from Sao Paulo to Santo Anton'o, about 93 miles, to include the purchase of about 50 electric locomotives. The American Consulate, Sao Paulo, Walter C. Thurston, consul, has information regarding the project.

The Firestone Tire & Rubber Co., Akron, Ohio, has authorized a fund of about $100,000,000 to be expended during the next five to six years for its subsidiary, the Firestone Plantations Co., for the development of rubber properties in Liberia, West Africa. Considerable machinery will soon be installed for new plantations on 1,000,000 acres now secured under lease. Harvey S. Firestone, Jr., has left for Monrovia, Liberia, to supervise operations and developments.

The Empresa de Mainobras Maritimas, Tampico, Mexico, has leased one of the local wharves of the National Railways of Mexico, and will equip the structure for the exclusive handling of zinc concentrates and raw zinc ore. It is purposed to install elevators of belt-conveyor type, conveying machinery, loading equipment and other handling apparatus, to handle a 6000-ton cargo in two days, as compared with six days under regular manual operation.

The date for opening bids for the Central highway project in Cuba has been postponed to Sept. 20 instead of Sept. 1, as last announced, according to an official decree quoted in a cablegram received in the Department of Commerce from Commercial Attaché Frederick Todd, Havana. The project will require considerable road machinery, etc., and calls for the construction of a 640-mile central highway running the length of the Island, with branches connecting the principal cities not on the main route. The cost is estimated at about $120,000,000.

THE LAST WORD

(Contributed by the Reader Service Department of the Iron Age Publishing Co.)

"Please let us know where we can purchase diphtheria germs." The number and variety of inquiries we receive have always appealed to our pride. So we strive to keep our omniscient batting average high by answering every inquiry we possibly can. Even the man who wanted the diphtheria "bugs" was put on the trail of an especially virulent supply, guaranteed to kill in 24 hours, if not hindered.

But the other day some one sent us a clipping of an advertisement in an 1875 issue of THE IRON AGE and wanted to know where he could purchase the pump illustrated. That was one inquiry we could not answer, for the manufacturer had been out of business for twenty-five years. There should be a law against answering advertisements more than half a century old.

If a common house fly were to alight on the end of a one-inch steel bar, rigidly clamped in a vise, with one end projecting one foot, the weight of the fly would cause the bar to sag one-millionth of an inch, the Packard Bureau of Standards is reported to have observed.

This department shudders to think of the havoc a couple of horse flies could wreak.

"Oh, yes, we tried the idea of paying employees for suggesting improvements in our operations or product. It worked all right for a few months, and then it petered out."

What manufacturer has not given the suggestion system a trial, and how few have been able to sustain a steady interest?

Many a suggestion system, started with enthusiasm and high hopes, has failed because too much publicity was given the winners and their suggestions. Will that bright young fellow in Department H run the risk of antagonizing the man above him by submitting his really workable scheme for improving the running of Department H? No, sir, not even if he would win the $5 or $25 prize.

One manufacturer has successfully overcome this obstacle by inclosing in every pay envelope a suitably worded stamped postcard, addressed to the suggestion committee. The card bears an identifying number; the same number appears on a tab attached. No name is necessary. The numbers of the prize-winning suggestions are posted bi-weekly on the plant bulletin board. The winners collect by presenting the correspondingly numbered tabs at the pay window.

The beauty of this system is that it works, for the presence of the suggestion postal in *every* pay envelope is in itself a constant reminder to each employee to cash in on that occasionally practicable idea that has been buzzing in his brain.

A. H. D.